This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

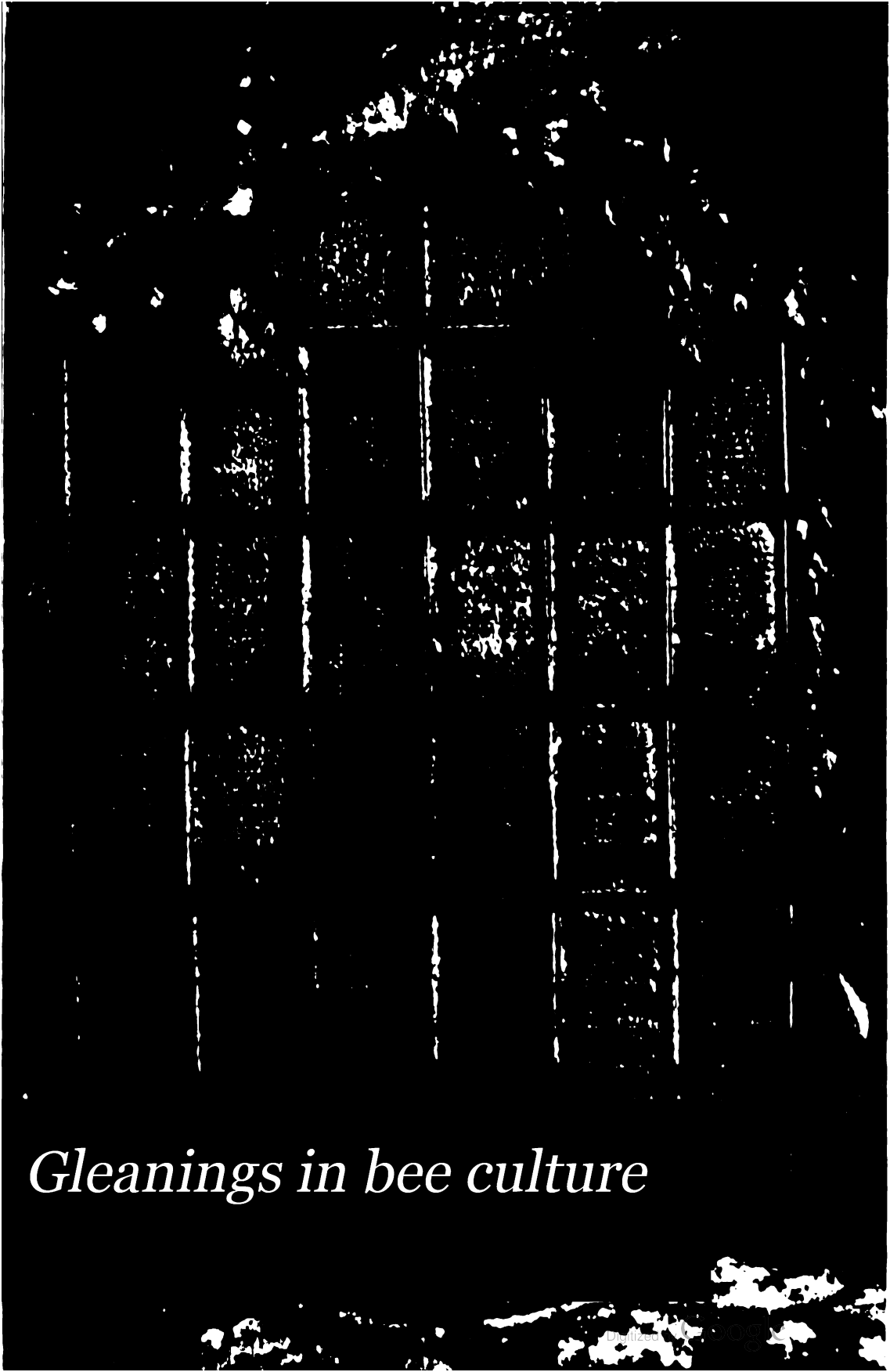
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

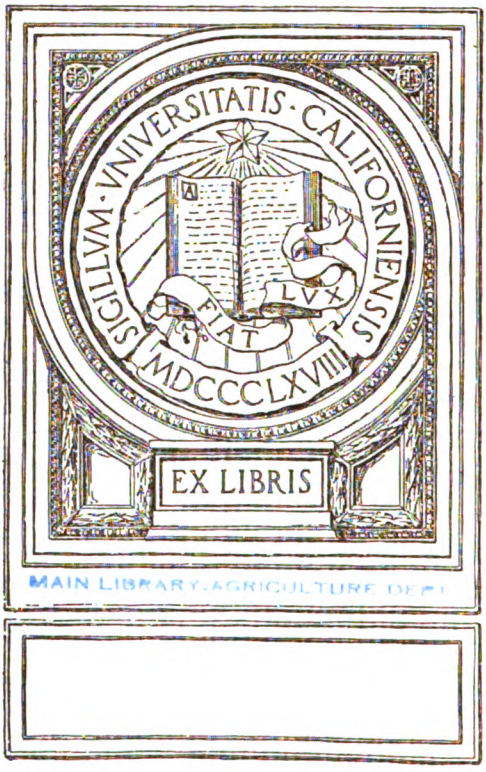
About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`



Gleanings in bee culture

Digitized by Google



MAIN LIBRARY-AGRICULTURE DEPT

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Vol. XXVII. JANUARY 1, 1899. No. 1.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS.

The A. I. ROOT Co.
MEDINA · OHIO ·

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Digitized by Google

MAIN LIBRARY-AGRICULTURE DEPT.

Our Great Combination Offers.

Gleanings and Rural New-Yorker for only $1.25.

By special arrangement with the publishers of the RURAL we are able to make this offer for a limited time. No words of ours are necessary to explain the worth of this great agricultural paper. Send in your order at once.

The Ohio Farmer (or Michigan Farmer) and Gleanings in Bee Culture for $1.10.

The OHIO FARMER stands in the very front rank of farm papers. It is edited by practical men, and among our exchanges in the agricultural line it is one of the few really good farm papers that we read.

Gleanings and Farm Journal for $1.00.

The FARM JOURNAL, of Philadelphia, a monthly agricultural journal of 16 pgs., sent ONE YEAR FREE for one subscription to GLEANINGS with $1.00, paid in advance, either new or renewal.

The Farm Journal is now in its 20th volume, and takes the lead among all the *low-priced* agricultural journals of this country and of the world. It gives no chromos, puffs no swindles, inserts no humbug advertisements, lets other folks praise it, and makes good to subscribers any loss by advertisers who prove to be swindlers. The editor was born on a farm and reared at the plow-handles, and the contributors are practical men and women.

The regular price of this excellent journal is 50 cents a year, and it is well worth it; but by special contract with the FARM JOURNAL we are enabled to make the above very liberal offers.

Gleanings in Bee Culture, American Agriculturist (weekly), Farmers' Almanac for 1899,

ALL ONE YEAR ONLY $1.00.

By special arrangement with the publishers, we are enabled to offer the American Agriculturist in combination with Gleanings at the unparalleled low rate of $1.00 for both papers one year including the Farmers' Almanac. The American Agriculturist is published in three editions. The New England Homestead, the American Agriculturist, and the Orange Judd Farmer. Each contains matter relating to its own locality, as well as the latest and most accurate market reports for the country in general. It has departments relating to all branches of farming, articles written by the most practical and successful farmers, supplemented with illustrations by able artists. Short stories, fashions, fancy work, cooking, young folks' page, etc., combine to make a magazine of as much value as most of the special family papers.

Taken separately these two papers and almanac cost $2.50, consequently every subscriber under this offer will get

$2.50 IN VALUE FOR $1.00.

Gleanings and The Poultry Keeper for only $1.00.

THE POULTRY KEEPER is a monthly journal, edited by P. H. Jacobs, and published at Parkesburg, Pa. It has tinted covers in two colors, and is beautifully gotten up.

Either old or new subscribers may take advantage of these offers, but in the case of an old subscriber the money must be sent in before the subscription expires; or, if already in arrears, all back subscription must be paid up at the regular rates, in addition to the clubbing price for a year in advance.

The A. I. Root Co., Medina, Ohio.

Digitized by Google

SF531
G4
v. 27
ENTOMOLOGY LIBRARY
UNIV. OF CALIFORNIA

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

VOL. XXVII. JAN. 1, 1899. No. 1.

STRAY STRAWS FROM DR C. C. MILLER

HAPPY New Year!

LOTS OF US have felt pained ourselves at the thought of Doolittle with broken ribs suffering pain at every breath.

H. W. BRICE says the fruit crop on a farm near one of his out apiaries is worth $500 a year more than it was without the bees.—*B. B. J.*

No, I COULDN'T CONTRACT to furnish 100 lbs. of propolis, nor of beeswax either. Couldn't furnish more than ⅓ to ½ as much propolis as wax.

P. H. ELWOOD is favored by Editor York as one of the directors of U. S. B. K. Union. Good man. I'll vote for him too. [So do I. See editorial elsewhere.—ED]

GIVEN a good district and a score of hives, he would be a very bad bee-keeper, possessing business aptitude, and not afraid of work, who could not exceed $125 a year, says *British B. J.* I'm afraid not many districts in this country are good enough for that.

"WE BELIEVE that we are, here, on the southern limit of safe cellar-wintering; and if we lived farther north we would invariably winter the bees in a cellar," says C. P. Dadant in *Am. Bee Journal.* That justifies my cellaring, but still I always have a hankering after out-door wintering.

OPPOSERS of plain sections will find an argument against them furnished by J. E. Crane, p. 915. The 1⅞ old-style section had a thicker comb than that in the 1½ plain, and the difference looked to him three times what it actually was. That is, a comb *looks* thicker in the old-style section.

C. P. DADANT'S article, p. 907, is a comfort to me. It settles the matter that eight-frame hives are better for me, although the large hives are better for him. At the same time, I envy him the advantages he has in the larger hives. [How comfortable it is to believe what we *like* to believe! It gives us an uncomfortable feeling to think that we have adopted a sort of supplies that are not best suited to yield the best results.—ED]

WITH FENCES having cleats in thickness running 13 to 2 inches, a 1½-inch plain section will have a comb with a thickness about midway between the thicknesses of the combs in old-style 1¾ and 1⅞ sections, leaning a little to the smaller size.—[This will be true, perhaps, with old-style sections; but the rule does not seem to hold true in the case of fence honey, but for what reason I do not know.—ED.]

THAT FENCES will make sections so even in weight that they may be honestly sold by the piece will need much observation to prove; but *if* such proves to be the case, it will be a strong argument in their favor.—[While I do not claim that this result can be secured beyond a peradventure, yet the experiences of those who have produced and sold honey in plain sections seem to point strongly that way.—ED.]

PROGRESSIVE'S Somnambulist expresses fears lest a result of Critic Taylor's work may be to deter many of our most practical bee-keepers from giving valuable information possessed by them. Let us hope not. An evident softening of his manner gives promise that better work is coming, and I can't help thinking that he has done some good by making some of us look a little more closely to our p's and q's.

D. W. HEISE is in trouble that he lays to the devil of the *Canadian Bee Journal.* The types, under the manipulation of said devil, made Heise speak of a 39 frame super! H. disclaims supers so large, and the next number reduces the size, making him work "three-nine-frame supers." Isn't 27 a rather large number yet, friend Heise? Let the devil alone, and stand over that proof-reader with a club till he makes it "three nine-frame supers."

THE HOLTERMANN hive-cover is mentioned in *C. B. J.*, by D. W. Heise, as a flat cover costing about the same as the ordinary cover, absolutely water-tight, and a good non-conductor of heat and cold. Something in that line has been needed a long time. [If I remember correctly, our figures show that this hive-cover cost us more than the all-

636895

Digitized by Google

wood ones. It is cheap as made by the E. L. Goold Co., because they have a good deal of sheet metal that is used for protecting certain packages, and this metal is practically good for nothing otherwise.—ED.]

HARRY HOWE will be after you for libel, Mr. Editor, for heading his article "Black Bees Preferred." He says he can work faster with black bees, but in the same paragraph practically says the Italians or Carniolans worked faster for him. He says that, when convinced that fancy stock will get enough more honey to pay, as he was the past season, of course he'll have it. And Coggshall will spend $50 in the spring in the same way. No, Harry's no longer a "black" man. [It seems to me that Harry is sort o' on the fence.—ED.]

YE EDITOR wonders, p. 933, why our house doesn't look as well outside as in. Well, the women run the inside; but I must draw the line somewhere, and I still have some control outside. I believe in a man standing up for his rights. [The line is seldom drawn quite so sharply as on the outside of the rear of one's house. Yes, I am a firm believer in men's rights—around the house, and in it too. There is one "right" I do not have in the house—that is, the liberty of throwing my coat and hat wherever I please, or of leaving books and magazines where I sat last.—ED.]

DOOLITTLE gives in *Progressive* a plan to prevent swarming that looks good. When the yield is on, and a tendency to swarm, cage queen in hive. Ten days later remove her and cage in the same place a young laying queen, with candy enough so she'll be liberated in about two days, cutting all queen-cells. The bees will do the rest. [Yes, it does look very promising; but I wonder how it would work generally to let loose the same queen back in her old hive. I suspect, however, that a *young* queen would do a better job at destroying the cells, while the old one might accept the situation as a preparation for swarming; and swarm she and the bees would, perhaps shortly after.—ED.]

I MUST HAVE BEEN very busy when GLEANINGS for Apr. 15 came, not to notice on p. 306 the assurance of the editor in claiming M. D. Andes on his side in the show of hands for section-holders and T supers. Mr. Andes distinctly says that he prefers *wide frames* to any other arrangement. O Ernest! [I turned away back to page 306, and I found that Mr. Andes says: "If you were to make me a present of 100 complete T supers I would not use them so long as I could get wide frames. I prefer the wide frames to any other arrangement for comb honey, except, perhaps, the Danzy super." The Danzy super uses section-holders pure and simple; in fact, Mr. D. adopted them after seeing how nicely they worked in our supers. But wide frames are section-holders without top-bars. I still claim that Mr. Andes is on my side. O doctor!—ED.]

"WHEN A QUEEN is discovered being 'balled' she should be released without delay, either by pulling the 'ball' of bees away from the queen singly, or in extreme cases by immersing queen and bees in water till the bees are forced by the law of self-preservation to release the queen."—*British Bee Journal.* Isn't smoking better than either way? Hold the smoker far enough from the queen so the smoke will be cold. Hot smoke will make the bees sting the queen. [I have tried all three of the methods spoken of above, and as a general rule I prefer the last named. But I have had cases where the ball of angry bees would not yield even to smoke. I have then picked the ball up by the wings of one bee, and dropped it into a basin of water. So far as I can remember the ball would always melt away immediately, and the bees would swim for the edges of the basin.—ED.]

WHEN I LOOKED at those two sections on p. 914 I said they were worse as to pop-holes than thousands I had produced of the old kind, but I suppose the shadow exaggerates the holes in the picture. [Those two sections were not introduced to show pop holes or no pop-holes, but only the slight ridging that was just barely perceptible in sections I found at Mr. Morton's. By the way, the Morton fence is not constructed in a manner calculated to do away with pop-holes. The posts or cross-cleats run clear up the full length of the section; and as they are ¼ inch wide they practically secure the same result, so far as pop-holes are concerned, as the old style scored-out section with an ordinary separator. If the fences are made as shown on page 912, Fig. 3, at A, results will be secured more like the bottom engraving shown on page 920, for this honey was produced with just such a fence. While I do not claim that a fence constructed as in Fig. 3 will do away with pop-holes in plain sections (I should be very foolish if I did), from what I have been able to observe it will go a long way toward that desideratum.—ED.]

GENERAL CORRESPONDENCE

BEE-KEEPING IN CUBA.

The Desolate Condition of the Island; How the Starving Ones are Fed; Reported by the Special Correspondent of Gleanings.

BY W. W. SOMERFORD.

[A few weeks ago I stated that Mr. Somerford was going to take a trip to Cuba, with his camera. As he had kept bees extensively on that island, and as he was about to visit it again, I arranged for a series of articles. He is to describe the conditions there existing, and state whether bee-keeping there will pay; tell us about the competition of Cuban honey; average yields per year, etc. We have just received the first article, and along with it

Digitized by Google

comes a note which is of such interest that I submit it to our readers.—ED.]

I found so few bees on the island, and so much starvation and misery, that, instead of spending the winter, a month there was enough for me this time. I also investigated Porto Rico through Dr. Vieta, of Cienfuegos. His last honey crop was only three hundred and sixty thousand pounds from two apiaries. So you see California isn't in the lead with her 65 tons from one man.

W. W. SOMERFORD.

[*Only* 360,000 pounds of honey from two apiaries! and all produced by one man! My, oh my! Suppose the duty on Cuban honey were to be removed; and suppose it is thrown in such quantities on the American markets; and suppose—well, I will let the reader do the rest of the supposin'. Here is the article, and I am sure it will be read with interest:]

Starvation in Cuba! I have just returned from a trip through Cuba—a sort of inventory trip—to ascertain what was left, after the war, of some of the finest apiaries in the world, and also to embark in the bee business again in Cuba after an absence of four years from that island. I visited many apiaries that were in a run-down condition, and will report through GLEANINGS the situation in Cuba exactly as one now finds it. But by way of caution I will suggest to those in a hurry to embark in the honey business in Cuba that there's plenty of time; the island is not such a paradise just now—not even for the modern honey-producer. And to those bee-keepers in the States who fear that the American market is going to be ruined by cheap dark grades of honey from Cuba I will say that Amsterdam, Holland, and foreign cities in general, get the honey that's produced in Cuba — not the American markets. The American honey-producers in Cuba, who have tried the United States markets, have paid for their experience in shipping, commission, lighterage, freight, cooperage, drayage (import duty 10 cents per gallon), and commission, to say nothing of leakage; and by the time these charges are figured up, and the cost of package added, at the Cuban cost, 5 cts. per gallon, the shipper wonders why he didn't sell in Havana at 40 or 50 cts per gallon net (packages paid for by the honey buyer).

After traveling hundreds of miles over the country I came to the conclusion that next October or November will be soon enough for the would-be Cuban bee-keepers to embark for Cuba; and to impress the fact on the minds of those who, *like myself*, are in a hurry to get to Cuba before it is overrun (with any thing but starvation), I will describe one of Miss Clara Barton's Red Cross kitchens that are now numerous and famous in Cuba.

The kitchens are located in some out-of-the-way place or back street in the cities. This one was at Sagua Lagrande — a city of 20,000 inhabitants in Santa Clara province, on Sagua River. The kitchen is nothing more nor less than a row of pots under some old shed, surrounded by a good wall or fence with water convenient. The pots are surrounded with masonry, the same as sugar-kettles, and hold about 100 gallons each. In the above city 2500 people are kept from starving by the provisions cooked and distributed from the pots, steaming hot, at meal time. A list of the ones nearest death's door is made. The number of persons in each family is taken down in a large book, and a ticket given to each family to correspond with his name. These tickets are carried daily to the kitchen; about fifty people are let into the kitchen inclosure at a time, with tickets in hand, and they march in a row by the book-keeper, and a tally is made for each ticket opposite his (or her) name; then the ticket is handed to the superintendent (Manuel Sanguily was in charge at Sagua City), who reads out the number of rations each ticket calls for; thus, four and four, two and two, three and a half and three and a half, or one and one, which means one ration of boiled beans and one ration of rice. Two men stand over the pots of beans and rice, each with ladle in hand, one dipping beans, the other rice, with ladles that hold about a pint and a half each; so one and one means a dish of beans and a dish of rice that will feed a person well for a day, so far as quantity is concerned.

The utensils carried for provisions by the starving people are as different as the people are themselves, ranging from gourds to 10-lb. paint-kegs. Such a variety can only be imagined, not described; and such a variety of faces and dresses one would never see in America. There were many half-starved half-naked children from ten to fifteen years old that had gone barebacked and bareheaded in the sun until they were as well specked with "freckles" as a turkey egg—a pitiful sight it was to behold.

But the most touching sight was when all who had ration tickets were supplied and gone, leaving about a hundred desolate unfortunates outside the gate, with buckets, cans, gourds, etc., but no tickets to admit or entitle them to the remaining rations in the pots, as some food generally remains after the list has been supplied.

Mr. Sanguily stood in the gate and beckoned in the ones who were the nearest to death's door, and had them given "half and half," or half a ration each. But to look into the faces of those poor starving people, when each was trying his best to look the most miserable in order to be beckoned in for half a ration, was a sight that a lifetime can't erase from one's memory—no, never. The misery and desolation in Cuba have never been told, and the martyrs for her liberty are too numerous to be numbered.

Navasota, Tex.

[One can hardly fail to have his heart touched by such things as these. For one I feel proud that our dear Uncle Sam, although perhaps a little late, has freed the Cubans from the hand of the despot. May Christianity, enlightenment, and progress find their way to these benighted hearts.—ED.]

Digitized by Google

LARGE HIVES—OBJECTIONS.

Large Hives for Comb Honey; Faults of Large Hives as Compared with Standard Eight-frame Langstroth.

BY C. P. DADANT.

Now, Mr. Editor, I wish to mention the most weighty objection to large hives; and that is Doolittle's remark that, if too much room is given, or the queen does not fill all the breeding space, the bees will become accustomed to putting honey into the brood-chamber and will crowd her out.

Please take notice that this is only a comb-honey objection. Those who support small hives seem now to hold that they are needed for comb honey only, and Hutchinson has lately said (and I take note of it), that "for extracted honey the size of hive matters little *provided it is large enough*" (italics mine). This is virtually acknowledging that the large hive is absolutely necessary to raise extracted honey. Now when you rear comb honey, according to those who do not agree with me as to size of hives, it is necessary to keep the queen on only the number of combs that she can well fill with brood, in order to get a good storing in the supers Very well; we are agreed, and I hold that this can be done with the large hive best, since it will accommodate from the most prolific to the poorest breeder. All it requires is a little attention, and you have the advantage of knowing the capacity of your queens and the chance of breeding from the most prolific. Is this too much trouble? It is a little more labor, and requires a little more judgment; but when you once have a populous colony it will be much easier to keep it strong in a large hive than in a small one, as I have shown you when speaking of wintering and breeding.

In some of your remarks in a previous article you ask whether it is not a great deal of trouble to add one comb at a time to the space of a colony. It is not absolutely indispensable to add only one at a time, and you may add two or three according to your opinion of the probable prolificness of the queen. One or two examinations during the spring ought to be sufficient.

Hutchinson has said, and still repeats, that queens are the least expensive part of a colony, and that it is better to keep all the hives and combs fully occupied than to use the queens to their greatest capacity. To us, in early spring, the number of queens on hand is the most important question; for we then nearly always have empty combs and queenless colonies; and I dare say that every bee-keeper has more hives and sets of combs on hand in spring than he has queens, and he is very well satisfied, and considers himself very successful if every hive is alive and every hive has a queen after winter. So it is the queens, *the queens*, that have the value to the apiarist after winter, and it is *what the queens are likely to do* that makes his prospect better or worse. That is why we want our queens, all of them, to do all they can for a large production of population, and we are quite willing to run the risk of having to remove a few combs from the brood-chamber, if comb honey is wanted, when the queen is not able to fill all, especially as those combs, at that time, need not be idle long, for they are needed for whatever increase is expected or wanted.

By giving *all* our queens *all* the room they need, we achieve what we consider the most desirable aim—get the greatest possible number of bees from the number of colonies we have, in time for the harvest.

And, by the way, I have re-read my last article on the disadvantage in cost, and I find that I make the case altogether too strong against the large hive. I have figured it at twice the cost of a small one; but I want you, Mr. Editor, or your business manager, friend Calvert, to tell us just how much difference there would be in the cost between a hive containing 11 combs instead of 8, with one dummy, and made like yours, but with frames just deep enough to suit a hive made of 12-inch lumber. If I am not mistaken the Dovetailed, Simplicity, etc., are all regular-depth Langstroth hives, and are made of 10-inch lumber. Just figure them made of 12-inch lumber and just as deep as could be conveniently made out of this. They would be very near the size of ours, which are made of 12¼, and it seems to me, at a rough guess, that, with the dummy and all the enlarged supers, they would not cost to exceed 25 to 40 cents each in excess of your small hive. The interest on the money, and the sinking fund to pay them up in 30 years, would not make the additional annual cost to exceed the value of a pound of honey per year. What makes the hives expensive, as we build them, is the telescoping cap, the double back, the projecting bottom-board, etc.—a thousand and one little nothings which we use just because we are accustomed to them.

Now, Mr. Editor, somebody asks me whether I think that the large hives are going to "take," and become prominent. I will frankly tell you that I think not. Say what we may, the $1.00 hive will sell because people go for cheapness. And if it were not a question of cheapness, but only of reason, does it follow that people would take the more reasonable course?

Do men chew tobacco because it is the best thing to do? Do our women wear tight corsets because they are more healthful? Do the Chinese bandage the feet of their girls because they will be benefited thereby? Do our little girls wear short skirts in winter and long hair in summer for their comfort? Why does a lady carry her pocket-book in her hand instead of having a pocket to her dress? Is it more convenient? Why does America take the Philippines and pay out twenty millions of her money? Is it for her moral or her pecuniary advantage? Nay, we are all more or less like sheep, and follow the bell-wether, whether she leads us right or wrong. Just see us now, throwing away our feelings, patting the British Lion, with the confidence of a child, forgetting that, less than forty years ago, he did all he could to promote secession and break up the Union. His cat-like paw is

Digitized by Google

velvety and soft just now; but look out for the claws, if we happen to reach out for a dish that he covets.

Hamilton, Ill.

[As I understand you, friend D., you prefer the large hives, even for comb honey, because their brood-nests are capable of equaling the capacity of the best queens; and that, whenever one is not able to fill the whole brood-nest, you contract the hive to her needs.

Now, here is a question I want to ask you: How many frames, of Quinby size, will your average good queens fill with brood, as frames are ordinarily filled? What I am getting at is this: Is the eight-frame single Langstroth brood-nest, in your opinion, large enough to accommodate the breeding capacity of the average good queens?

Our Mr. Calvert, who makes out our estimates, has figured on the two styles of hive you describe, and he estimates that the larger one would cost only about 40 or 50 per cent more than the smaller one. If that is the case, then you, in your preceding article, made a stronger case against the large hives than was necessary. It shows you meant to be entirely fair.—ED.]

EUROPEAN BEE-KEEPING.

Wander-Verein of the German-Austrian and Hungarian Bee-keepers.

BY F. GREINER.

The conventions of this association have always made a favorable impression on me. One reason is, perhaps, because I am a German myself; but I believe more so because not only the common people are greatly interested in them, but also the authorities of state and municipality have a way of showing their interest, which is at least pleasing and perhaps encouraging. The meetings are frequently led or conducted by some high official, perhaps a secretary of agriculture or his representative. This has some advantages. Although a president of this order can not be expected to be and is not at home on the subject of bee-keeping, still he understands the parliamentary rules better. He is not apt to be carried away with this or that subject. From his disinterested standpoint he can often better decide when to close a discussion. Personalities are not likely to creep in, etc. The fact that a man of high rank presides at such a meeting lends weight and importance to it in the eyes of the general public, and casts an edifying light upon the whole pursuit. Whatever may be said against the practice, the fact remains that the gatherings of the Wander-verein have almost always been conducted in a faultless manner. The fact that the government lends its help to the undertaking causes a better attendance; and when bee-keepers know that every thing will be done by the city in which the convention is to be held, that no efforts will be spared to make it pleasant for the attendants, and to help to make the whole a success, that also has a wholesome effect, and induces many to come to these meetings.

Generally the inhabitants of a city where a convention is to be held offer free board and lodging to all who prefer this to hotel board, and much is done to amuse the guests. How far this is carried, the reader can form an opinion from what took place at the Salzburg convention last September, and which I will here relate, translating it from the Leipzig *Bienenzeitung*. As there was only a forenoon session on the first day in Salzburg, the afternoon was set apart for sightseeing and amusement. Accordingly the great swarm of bee-keepers, over 200 strong, with Dzierzon at the head of the procession, carried on the shoulders of men, made their way to Castle Heilbrunn, in the vicinity of the city. After all the sights were taken in there, the guests were led on by the guides to a celebrated cave called the Stone Theater. The greatest surprise would meet them here. After all had entered, differently colored lights flashed up all among the rocks, and a grand illumination took place. The sweet strains of (as it seemed) angels' voices singing were heard in the distance, and coming nearer. As soon as this had ceased, the rocks, high up, seemed to open up, and the Dwarf King, in rock-colored dress, and with long flowing beard, appeared, and began to address the surprised listeners in poetic strains, welcoming them to Salzburg. No sooner had the king spoken than a multitude of cunningly dressed dwarfs (or perhaps so-called brownies) seemed to emerge from among the rocks. They all carried baskets filled with bouquets and flowers, with which they proceeded to decorate the bee-keepers. The surprise was a perfect one, and created a storm of applause. In company with the happy set of youngsters, the return trip to the city was then made.

There are still other features connected with the Wander-verein that materially add in making it a success, and wherein its members have a decided advantage over similar organizations here; namely, they receive every year an appropriation from the State, to be used for various purposes, but principally for prizes and premiums; for it will be remembered that there is always connected with the convention an exhibition of bees, hives, implements, literature, etc. The cities also often donate something for these purposes, sometimes ornamental pieces like silver cups and the like.

Furthermore the railroad rates are very low, in particular to members of that kind of organization that tend to improve and educate. Since the roads are owned and operated by the government it is a very easy matter to obtain these low rates. Even laborers are often carried for almost nothing from one part of the country to another. For instance, should there be a scarcity of laborers in certain districts at certain times of the year, the government at once makes an effort to equalize; and after the work is done the laborers are carried back to their homes for an insignificant sum.

When we take into consideration that distances in Germany and Austria do not amount to much compared with distances here in

Digitized by Google

MR. COGGSHALL AND HIS HELPERS READY TO START FOR THE OUT-YARDS.—SEE EDITORIALS.

Digitized by Google

America, we need not be surprised that the attendance at bee-keepers' conventions there is so much better than here.

Naples, N. Y., Nov. 30, 1898.

[If we could have government support, and if, in addition, the government owned the railroads, so that we could get low rates; if we could temporarily shrink Uncle Sam's domains to cut down mileage, perhaps we could have big conventions. It is easy to see why the Germans beat us on their large gatherings. —ED.]

DOOLITTLE ANSWERS DR. MILLER.

Egg-laying of Queens Dependent upon the Kind of Honey Produced.

BY G. M. DOOLITTLE.

I supposed I had annihilated that "arena" fitted up for Dr. M. and myself to fight in; but it seems that the good (?) doctor is bound to fight with Doolittle anyway, as a Straw (p. 869) in December 1st GLEANINGS would denote. After telling what Dr. E. Gallup says about a queen of his occupying 24 Gallup frames fully with brood, Bro Miller wants to know how I reconcile that with a statement I made, that 9 Gallup frames entertain the best queens to their fullest capacity as to egg-laying, and if Dr. Gallup's queen did not need nearly three times as much room. Well, my dear doctor, had you read the bee-papers more carefully during the past, and remembered what you read, you would have known that Gallup's 24-frame hive was worked for *extracted* honey, while Doolittle was talking about hives worked for *comb* honey. But I think I hear the doctor saying, "Has the working of a hive for extracted honey any thing to do with the capacity of the queen for egg-laying? or does the working for comb honey decrease her capacity any?" his eyes giving that peculiar twinkle they have at times when he is thinking to himself, "Guess I have got you this time." Dr. M., let me tell you something. I am not going back through musty volumes of old bee-journals to hunt the matter up to get exact figures, but shall tell it from memory. Up to 1874 I had thought that 9 Gallup frames would entertain the best queen to her fullest capacity, no matter whether the colony was worked for extracted or comb honey; for up to that time that was the greatest number allowed when working for either. In the spring of 1874 I read up on the (Adair) Long Idea hive, and became infatuated with the same. I made two of them, working one for extracted honey and the other for comb, these hives being made to hold 32 Gallup frames when the whole number was in. I selected two average colonies out of my nine-frame hives; and when the nine frames were pretty well covered with bees, and brood in some six or seven of the combs, I set each over into these four-foot hives. At the same time I selected another colony of about the same grade, to be worked for extracted honey on the tiering-up plan, and one to be worked for comb honey on the nine-frame "side and top box" plan I had used before. In due time the two long hives were filled out with the full 32 combs, with sections on the one for comb honey, and extracting going on every third or fourth day from the other, as used to be the style under which extracting was done. In the tiered-up hive, the queen was kept on the 9 frames by means of a slatted honey-board, and the one worked on the side and top-box plan manipulated as well as Doolittle knew how. Now for the result: Before the basswood harvest arrived, the queen in the long hive, worked for extracted honey, had brood in every one of the 32 combs, to the amount of some 18 or 20 combs *full* of brood; while the one worked for comb honey, having 32 combs, had brood in only 13 combs, the same amounting to only about 9 frames *full*, the rest of the combs being partly occupied with honey, which ought to have gone in the sections, and would have gone there had this queen had only the 9 combs for her brood-nest. So the queen from the extracting-hive was laying about 5000 eggs daily, as Dr. Miller says, to where the one in the comb-honey hive was giving only about 2500, each evidently laying to her fullest capacity. What made the difference? There is something about extracting honey that causes bees to *feed* a queen in such a way that she will give double the eggs, if she has comb room, that she will when no extracting is done, and thus a queen is coaxed to produce and develop all the embryo eggs she has in her ovaries, in the shortest possible time, while under normal circumstances she will be laying up to her fullest capacity when not producing half the number of eggs she does under the stimulating influences which come from extracting.

All four of these queens were reared during the swarming season of 1873, so they were less than a year old when the experiment was commenced; but the one in the long extracting-hive died of old age that same fall, while the other three lived and did good work the next season. I have tried nearly the same thing several times since, and proven to my entire satisfaction that a queen will occupy double the number of combs with brood, where extracting is being carried on, as often as the combs are filled with honey, that she will when her colony is worked for comb honey.

In passing I will note that the hive worked for extracted honey on the long-idea plan gave 566 lbs. surplus, while the one worked on the tiering-up plan gave about 400 lbs., thus showing that I had only 166 lbs. more honey as a result for double the brood reared. The long hive worked for comb honey gave only about 50 lbs. of section honey, with the 32 combs nearly solid full of honey, while the one worked on the side and top storing plan gave 309 lbs. of section honey, with enough below to winter the colony on. The average from the whole apiary that year was 166⅔ pounds from each old colony in the spring, all of which was comb honey, excepting that from the two colonies worked for extracted, the whole number in the apiary in the spring being 69.

Now just a word more: I do not get, on an

Digitized by Google

average, any more brood in the ten-frame Langstroth hives at the out-apiary than I do in my nine-frame Gallup hives here at home. To be sure, I often have brood in the whole ten frames, but not more than enough to fill from six to seven full, while the nine Gallup frames are *full* clear out to the corners, as Ernest says the Holy Land and Cyprian queens will do. Now if, when working for comb honey, I get to the amount of only 6¾ Langstroth frames of brood out of 10 frames, or 9 Gallup where I use 12, 18, 24, or 32 in a hive, will Dr. Miller say that 9 Gallup frames or 6¾ L. frames will not entertain any queen to her fullest capacity in this locality? And allow me to say, in a *very friendly* way, that I am inclined to think that what is applicable to my locality will come very nearly the truth in other localities, if others will work along the same lines Doolittle does, and experiment, and note things as carefully.

DOOLITTLE ANSWERS THE EDITOR.

And now I come to another Straw (p. 870) where the editor wishes me to explain. And that "twinkle" in Dr. Miller's "eye" caused him to wish the explanation. It's not very often that the doctor gets in two "twinkles" at Doolittle in one batch of Straws, as he has this time. The editor points me to his answer to "Straw regarding Dadant's statement to the effect that queens will lose time in hunting for empty cells" where she has just room enough for her needs, but for the life of me I can not tell whether he agrees with Dadant or not. As Dadant uses only *large* hives, I doubt whether, from practical experience, he is capable of telling just how much a queen hunts about for room, unless he has seen her doing so, because his large hives allow the bees to crowd the queen with honey (when working for section honey) by their starting storing in the combs below instead of entering the sections *promptly* with the beginning of the season, as they should do. If the queen does so hunt I have never been able to detect her so doing; for where frames are filled solid with brood the young bees emerge "solid," and so she keeps on following the brood as it emerges, in regular order. But if I read the editor aright he wants to know if queens reared by the plan given in "Scientific Queen-rearing" do not need more room for egg-laying than those formerly reared by old plans. In answer to this I will say that, as the older readers of our bee-literature will remember, up to the eighties, and for years, I used only six and seven Gallup frames to the hive, and a number of articles can be found in the *American Bee Journal* headed "Those Six-frame Hives," in which I showed how I succeeded in producing tons upon tons of comb honey by the use of from six to seven frames for brood. And even to-day, where I find a queen that does not fully occupy more than six Gallup frames at the beginning of the honey harvest, that colony has the other three combs taken away from it, as years of experience has taught me that a lot of empty comb in the brood-nest, at the beginning of the honey harvest, is the greatest drawback toward a successful result in comb honey of any thing I have to contend with. But I am prepared to say that the number of colonies shut on six and seven brood-combs at the beginning of the honey harvest is not nearly so great as it was before I practiced the plan of rearing queens as given in "Scientific Queen-rearing."

Borodino, N. Y.

[While Doolittle does not say so in so many words (owing, no doubt, to his modesty) I infer that quens reared by his method require larger brooding-space than queens reared by the old ways—at all events, that has been our experience. A honey flow, feeding, or large cells, seem to be important requisites.—ED.]

SECRET OF SELLING HONEY.

A Good Article, and as Cheap as Sugar.

BY S. F. TREGO.

Would it not pay a great many bee-keepers, who are properly situated, to aim to produce more honey, and sell it cheap enough so that their neighbors can afford to eat it every day? I know that 10 cts. per pound for comb honey is very cheap from the bee-keeper's point of view; and, in fact, I would not care to produce it for less; but put yourself in the place of the ordinary workingman and you will think it is, to say the least, high enough. I know that not a tenth of my neighbors have honey once a week, and yet they all use sugar every day. How do I propose to get them to use more honey and less sugar? Simply by producing a good article of extracted honey, well ripened, and selling it at a price that will compete with sugar. That is the conclusion I have arrived at. I got a crop of something over 350 pounds of nice heartsease honey from my 6 colonies (spring count), and have been selling it at 15 lbs. for $1 00 (granulated sugar is 16 lbs. for $1.00). I was out half a day and sold 96 lbs., and since then I have made no effort whatever to sell. It just sells itself. Nearly every time I go to town some one will ask, "Have you any honey left?"

"Yes"

"I want a dollar's worth."

One day I was in Cable, and sold $3.00 worth without trying, and last night I went over to a neighbor's and he gave me an order for a like amount—one for himself and two for another man. This leaves only 15 lbs. to sell yet, so the fun is about over for this year.

When that goes it will be 300 lbs. sold for $20.00, which is pretty good for 6 colonies, when we consider that the clover was a total failure and that they were increased to 17 colonies.

This honey-flow was a surprise to us, as many colonies had but five combs when it began; but by the time it was over, all were full.

We have great hopes for next year. I am putting up a honey-house 10 x 12, two stories high, that will be a great help in handling the crop at the least expense. It is situated at the lower side of the apiary, and an inclined plane

Digitized by Google

will lead to the second floor, where the extractor will stand. From there the honey will go through a strainer and downstairs by a pipe into the barrels, which will be well waxed, and will stand on strong benches high enough from the floor so that the honey can be drawn off into 15-lb. pails.

I have taken great pains to tell all who buy where and how to keep honey, and how to liquefy granulated honey; but another year I shall have some of those little pamphlets put out by the Roots, as they explain it better than I can.

The main point is good honey. If it is good, and cheap enough to compete with sugar or molasses, the common every-day people will have it as soon as they learn what it is.

One patron, when he bought his second lot, said it was about as cheap as molasses, and a lot cleaner. His next neighbor, in ordering his second lot, said it was cheaper than buying so much sugar.

Swedonia, Ill.

[It is true that not enough emphasis has been placed on the quality of extracted. It should be well flavored, thick, and cheap enough to compete with sugar. When these conditions are secured, honey will sell of itself. Why, my "taste" has become so that I can't like any thing but the best thick honey. Let the public once acquire this taste, and if you have the goods to supply it they (the goods) will sell without any effort.—ED.]

A PURE-FOOD LAW MUCH NEEDED.

How May it be Secured?

BY F. A. SNELL.

The matter of pure foods is of vast importance to every citizen. It is one in which the old and young, rich and poor, have a mutual interest; and if such a law could be secured and enforced the benefits would be mutually shared. I have read with interest what has been printed in our journals on this important subject. I think some of the writers have not taken as broad a view of this matter as should be the case. The question is a broad one. It has been considered, it seems to me, too much by bee-keepers as bearing on their interests as honey producers and sellers. That is all right, I think, so far as it goes. The producers of pure maple syrup and sugar are wronged the same as are bee-keepers and others who are legitimately engaged in producing pure food products on through the list; but it must be remembered that the above referred to parties composing but a very small part of the whole people of our country. In order to secure the desired law and its enforcement, the broad and correct view must be taken that the called-for law is for *all* our people, as it truly should be, and embrace all food products.

It must be evident, to every one who has given the matter any intelligent thought, that the health of our people has been much injured by the miserable imitations of pure foods, and medicines as well, which we have bought and used, paying the price at which the pure goods should be sold for. We know that people have been made sick by the fraudulent mixtures when eaten. A national law would be very desirable; but there are doubts as to such being secured very soon. Every State not now having a good law of the kind should pass one at the earliest opportunity. As many of our State legislatures are now in session an effort should at once be made with them for a good law on this matter of pure foods, etc. I think a State inspector, to see to analyzing samples of these products, and making collections from different manufacturers and dealers, down to the retail dealers, or grocers, should be chosen. He should have, I think, full power to commence suit against any party who may be known to have on sale such goods. A fine by law should be levied on every one found guilty of its violation. Suspicious goods could be sent to the inspector for analysis, by any citizen of the State. Imprisonment for second or later violations of the law would be advisable. With such a law, every one selling bogus goods would be held responsible, and would soon learn that the people had rights that dealers should respect.

France, England, Germany, and some other countries have had such national laws for years, and such have been enforced, including imprisonment, to the great satisfaction and benefit of the masses. In our State we have fair laws in this matter, but I think they should be made more complete and far reaching, with an imprisonment feature, and the appointment, or, better, the election, of an inspector by the people. Evidently we should have the best law that can be framed for the protection of our people against unscrupulous greed and dishonesty. I believe that, to secure the much-needed legislation, not one or two industries, or a few that are now wronged, will by delegates or committees be able to do much; but when we unite the interests of *all* our people for the rights and best interests of the masses, we may win. We are all consumers, and that is where our strongest points of argument and reason will best apply and have the greatest influence. Such a view is far above any thing in the line of class rule or class interests. With a clear, well-directed effort in the lines above suggested, by a large representation, it seems to me any respectable legislature would do what would be so reasonable and just as to pass a good pure-food law, and thus give relief to a long-suffering people.

The above is only a little of what can be said on this all important matter. I hope many others who can do much better than I will give their views and throw more light on the subject. Practical ideas and united action, with a move along the whole line upon the gang of adulterators in securing pure-food laws and their enforcement are now seemingly more needed than ever before. Every article used for food should be branded just what it is, and sold for such. The honest producer puts up pure and healthful goods, and is forced to sell them at little or no profit, while a good margin is made upon the bogus. The

Digitized by Google

innocent consumer often buys the inferior, and in good faith that it is pure, with very few exceptions perhaps. He gets the health-destroyer when he supposes he is buying the health-preserver or health-improver. Thus one might continue in naming the wrongs from which we suffer by these infamous abuses committed by the adulterators of food products.

Milledgeville, Ill.

BEE-VEILS WITH A FACING OF HORSEHAIR.

Quotation-marks that Don't Quote; Bamboo Canes on Lake Geneva.

BY F. L. THOMPSON.

Dr. Miller asks about horsehair veils. There are none, I believe, that have any more than a facing of horsehair. I have used one for two seasons. The facing is good yet. Lately some holes developed in the cotton tulle that forms the body The horsehair is about equal to black cotton tulle for seeing through, and has the advantage that it never gathers in folds. I do not know how it would compare with silk tulle, having never used this. If the latter is better, why couldn't it be kept stretched in a little frame set in the veil? How about the fabric called "illusion," sometimes used for ordinary veils?

While literary infelicities are up, I want to ask Dr. Miller and his careful imitators, Gleaner and B iler, why that memorandum-book style of saying "in *Review*" instead of "in *the Review*." This is a small matter, but they are so persistent in it as to powerfully excite my curiosity. Surely, they don't mean that the former phrase is correct, nor the latter incorrect.

And the Chicago breezes fanned somebody's "brow," they did. When I read that, my "skin" experienced a creepy "feeling," something like that felt when I see a "young man" wearing his "hat" on one side of his "head," or a "girl" chewing "gum." Verily, the use of quotation-marks that don't quote has become fearfully and wonderfully extended. I could cite many such examples from the bee-journals of the last few months. While admissible in some degree, such extreme applications are *never* found in good literature. Then there is the wooden and commonplace use of the exclamation-point, etc. But what riles me particularly is to have the proof-reader interfere with my punctuation. Beyond certain general rules, the niceties of punctuation, and particularly the use of the comma, are, according to the best authorities, matters of taste. I suppose the proof-reader gets so used to supplying punctuation that he does so indiscriminately. But when he sees that one has his own notions of punctuation he ought to confine his work to the correction of real errors, applying only such rules of punctuation as are universally used in good literature.

Here is an item for A. I. R., which I translate from *L'Apicoltore*, which translated it from some German paper. Herr Reepen, a well-known bee-writer, has been visiting Editor Bertrand, of *La Revue Internationale*, who lives on the shore of Lake Geneva, at Nyon, Switzerland. He says:

"Great was my surprise to find in the magnificent garden, which descends to the edge of the lake, canes of bamboo of a height that I have not seen equaled outside of the Indies. On inquiry I learned that it was a variety of bamboo that does not fear the rigors of winter, indigenous in the high mountain regions of Japan, and probably not existing in any part of Europe. Now, thanks to the kindness of M. Bertrand, a healthy shoot may be found here in Oldenburg, and is prospering wonderfully. I do not doubt that it will successfully pass the northern winters, as the temperature at Nyon, too, often descends to —13°R. [+3 F.] Nearness to running water is a condition of its growth; and when this is not lacking, such a variety of bamboo will become an incomparable ornament of parks, gardens, etc. The dusky-green color of its leaves is especially remarkable, not changing even in winter."

Montrose, Col., Oct. 26.

THE DOOLITTLE METHOD OF QUEEN-REARING.

How to Rear Giant Queens.

BY C. T. BONNEY.

Since the Oregon went around Cape Horn and whipped the whole Spanish fleet, Oregon doesn't seem as far out of the world as it did before. Now that peace is declared I thought a red apple from Oregon might not look bad in your journal.

I have noticed considerable in GLEANINGS lately about the Doolittle method of queen-rearing, and I should like to drop a mite in that direction in hopes that some brother bee-keeper will experiment along the same line. I use the Doolittle method because I can raise larger and better queens by that process than any other; and what I have to say in regard to it is only with the hope that others may have the same success with it that I have had. I know quite a number of the bee-keepers who use this method are old-timers, and well versed in bee-lore, yet I believe not all of them have caught on to the greatest advantage in the Doolittle method, which with me is being able to raise the largest queens that I have ever seen—larger than I ever saw issue from natural swarming. When I began to handle bees I was not long in learning that they sometimes build small queen-cells, and from small cells come small queens, and small queens almost always head a small or weak colony; while large queen-cells bring large queens, and large queens are almost invariably prolific. It occurred to me one day that I might raise all extra-large queens by making the queen-cups larger, so I accordingly made some form-sticks one-third and in some instances one-half larger than an ordinary queen-cell, and found to my great satisfaction that the bees would draw out the length in proportion to the diameter, and thus I have raised the largest and most prolific queens that I have ever seen.

Digitized by Google

I made up my mind some time ago that the editors of the bee-journals had started in to fence the whole bee-fraternity, but their dominion hasn't reached Oregon, so we had to devise one of our own. I am willing to admit that the slatted fence separator is better than any of the old styles, yet the one I use suits me better, which is a fence made of galvanized wire cloth, eight meshes to the inch, and the same width of tin separators. When perforated with about three dozen ¼-in. holes it allows as free passageway as I think is necessary, and each bee can see what its neighbor is doing in the adjoining section, and it allows the freest circulation of all. I find that bees will work evener in the supers with these fences, and will ripen the honey quicker than with any other. It is easily cleaned, and will last a lifetime; besides, it has an advantage over all other separators in extracting unfinished sections. Two wide frames can be dropped in each basket of the extractor, and the honey throwed out, in less time than it takes to write it, and that without removing any sections. If any have a patch of cappings in the center a thin knife can be run under the wire fence, the cappings removed, and you can see just what you are doing all the time. Honey can be extracted in this way almost as fast as from the brood-frames, depending, of course, on how near the sections are finished.

Woodburn, Ore., Nov. 21.

[I am inclined to think there may be something in the idea of large cells producing large queens. I should like to hear from Mr. Doolittle on this point.—ED.]

BEE-STING DEATH.

An Interesting Account of the Results of Stings on a Horse.

BY GEO. L. VINAL.

Perhaps this article would be more appropriate for a medical journal. Thinking it might be interesting to the readers of GLEANINGS, I will give an account of a case that came under my observation.

September 7th, about 2:00 P.M., one of the men was passing by some hives which were about a hundred yards from him. He had passed by in the same place frequently all summer. It was a partly cloudy and very muggy day. I had come from the bees before dinner, and saw no robbing. They were as quiet as usual. For some cause the bees attacked the horse. The man succeeded in getting him partly unharnessed, when he cleared himself from the wagon, when he and the man took French leave. The horse got about 200 yards away from the bees, and stopped. I was called, and found the air full of bees. Covering my head and face with netting, I went and led the horse into some bushes, and then to the barn. I got to the barn at 2:25. No bees followed. The horse was a large one, in good condition, and would weigh about 1200 pounds. His head, nose, ears, neck, and body were pretty well covered with stings. A strong wash of ammonia was made, and applied over him. At this time he did not appear to be in much pain, and stood quite still; but in about ten minutes he began to shake his head, and respiration began to increase. I took his pulse, and it had increased to 50 per minute. The normal pulse of a horse is 36 to 40. The normal respiration is 10 to 12, and the temperature is 98⅘.

At 2:45 the pulse was 60, respiration 30, temperature 102. The animal would stretch, and urinate of a highly brown color, with frequent evacuations of the bowels, of a thin and watery consistency. At 3:00 P.M. the above symptoms had increased in frequency. The pulse was 80, respiration 60, temperature 104, with marked symptoms of delirium. He would throw himself on the bedding; would jump up again, and plung and tug at the ropes that he was fastened by; would whinner in a loud shrill voice. These symptoms lasted until 4:15, when they began to abate, and the respiration began to be somewhat stentorious; he also began to show paralysis of the extremities.

At 6:00 P.M. he was unable to get up. The pulse had decreased again to 60; the temperature had increased to 105. The respiration decreased to 40, with the stentorious breathing more marked.

These conditions continued in a more marked degree until he died, at 9:30, or about seven hours after he was stung.

An autopsy was made the next morning at 7:30, or ten hours after death. The whole alimentary canal was congested; the lungs were gorged with blood; the cavities of the heart were filled with clotted blood of a dark viscid consistency, and all of the muscular tissue was filled or congested. The coverings of the spinal cord were congested; also the covering and substance of the brain.

We are told in the bee-journals that the poison of the bee is formic acid. We are informed in scientific works that it can be extracted from the ant, the caterpillar, and numerous other sources, and that it can be produced chemically. In some medical works we are told that it is used in a diluted form, applied to the parts of a paralyzed limb; that its application increases circulation and a prickling sensation over the parts it is applied to. Now, will some of the shining lights of "beeology," who are scientific medical men and chemists, please inform us why that strong and healthy animal should die from a few stings in about seven hours after he was stung, with all symptoms of paralysis?

Charlton City, Mass.

W. H. A., S. C.—We would not advise you to move your colonies at this season of the year. As long as the bees can fly nearly every day you might lose half your bees by removing to the porch mentioned in your letter. If you lived, however, in the North, where the bees could not fly for a period of three months, the change could be easily made.

Digitized by Google

RAMBLE 158.

Bee-keeping in Northern California.

BY RAMBLER.

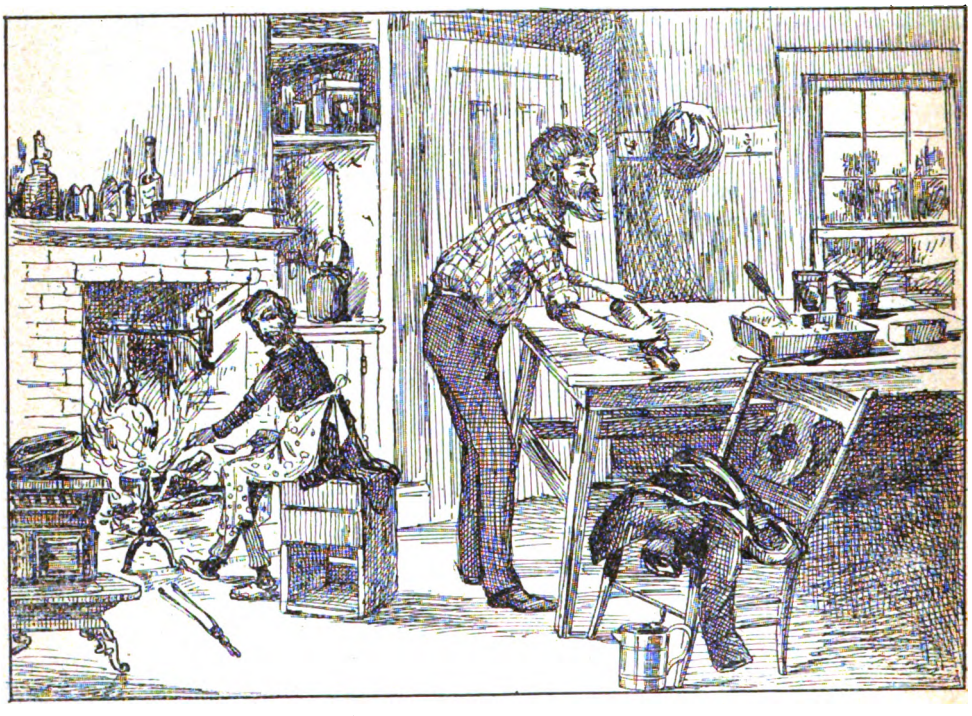
We were in a mining town, where the necessities of life ruled high in price, and the food question was of some interest to Mr. Levering and myself. Five dollars a week was the regular price for board; and we entertained the idea that, with proper economy in baching, we could save enough to pay us for indulging in that mode of life. In fact, I was so used to it that I preferred it; and in times of yore the judge had practiced it. His late brother was a bach, and, having all the tools necessary for promoting the enterprise, why not?

We accordingly set up our household gods in the little old cabin near the apiary. The judge occupied one corner of the cabin with his bed, while the other side and corner were occupied by an ample fireplace and stove. The dormitory where I spread my folding cot was in a brand-new building termed the vinegar-house. The late Mr. Levering made quantities of the latter beverage from honey, and there was 18 barrels of it on the premises. I felt perfectly safe in sleeping in the room, on account of the strong "motherly" influence that made itself known to the sense of smell.

In cooking we at first divided the honors, and I started in blithely upon the pancake department. But with the very first breakfast I knew something was the matter with the judge's gastronomy. He did not say much, but the cakes were evidently lacking some ingredient his grandma used to insert.

Now, some of the leading bee-men in California, and some Eastern bee-men, and even John Calvert, had all eaten my famous cakes, and pronounced them good; and now here in this lonely mountain fastness the judge turned his plate against them. I was so disappointed that my interest in pancakes waned from that moment, and I stopped their manufacture.

Some mornings after this stoppage the judge surprised me by remarking that he was pancake hungry, and he believed he would make some. It is needless to say that my interest in that department revived, and I was all attention to the new mode of manufacture. The second move he made, however, commenced a series of discouragements to my eating them, for he used soda, which I do not like, and so strong that the odor of the cakes while baking had a stunning influence upon the flies, which were plentiful in the room. Then I could see by the way they bellied down in the center that they would be as tough as a piece of leather. Did I eat any of those cakes? No, sir! I was anxious to live through the summer, and I resisted every time the judge passed the plate to me. He was evidently disappointed at my refusal, and proceeded to dispatch them himself. Now, some bee-men and others have an idea that the



BACHING IT AT AN OUT-YARD IN A LONELY MOUNTAIN FASTNESS.

Digitized by Google

judge is a feeble man, and not long for this world. I was tinctured somewhat with the same opinion until I saw those flat soda pancakes disappear. I immediately made up my mind he was good for thirty years more of life. He is now 71. Why, land sakes! you all know what a strong stomach a corn-sheller has for digesting things. Well, a Levering pancake would give it the colic in five minutes. I really think the effect upon the judge was distressing, for he never became pancake hungry again during my residence in the neighborhood, and it was very fortunate for him that he did not. We silently, but by mutual consent, dropped the subject.

In nearly all other matters of cookery the judge displayed decided talent. I admired the rolling-pin he used when making biscuit, and have sketched it for the benefit of the reader. In its season we had much fruit on our table, and at the end of six months' baching we found the expense was $1.66 per week. Now, 83 cents each per week is not slow for economy. The judge was looking out all the time for the interests of the heirs of the estate; and as long as he and I were satisfied with the board the heirs ought to be; but, ten chances to one, the judge will, in the end, get no thanks, but kicks instead.

CHAPARRAL THICKET.

Our honey season started in somewhat slow, and with some elements of discouragement. The early fruit-bloom did not yield honey, neither did the manzanita, which is quite abundant here. The mountains are also covered with chaparral, which, I am told, yields some honey, but it failed this time. Chaparral is a dense growth of bushes on the mountain-side, and they are so interlocked that it is next to impossible for a man to find a passage through it. It has a small white blossom, but I doubt whether it yields much honey at any time. While my nearest neighbor rounded up his herd of cattle, sheep, and his family, for a photo, I found that I had in the background a very good view of a mountain covered with this growth, and it will give your readers an idea of the appearance of chaparral.

Owing to rain and cool weather, several hundred pounds of old honey was fed to the bees. As this was mostly comb honey in large 12-pound boxes the task was an easy one, except that, every time honey was placed over the brood-nest, the back door and top of those Harbison hives had to be retucked with paper or rags.

It was well into June before the bees commenced to gather honey, and this came from the first crop of alfalfa. While in Southern California five or six crops are harvested per annum, and always cut just as it comes to the blooming-point, here there are but two crops; and, fortunately for the bee-keeper, it is allowed to stand two weeks in bloom. The first crop yields more honey than the second, and with less admixture of honey from other sources. Our honey from this first crop was almost as white as sage honey, and of fine flavor. The second yield, in August, was less in quantity, and darker in quality from being mixed with honey from blue-curl, locally known as tar-weed, and known in Southern California as flea-weed or vinegar-weed. It secretes a dark honey having a strong disagreeable flavor. There were acres of it on all waste places in the valley. The bees commenced to work upon it just as soon as the first crop of alfalfa had been harvested.

When I saw indications of the coming of the second yield of honey from alfalfa I extracted all "tarweed" honey; and, although it was nearly all unsealed, it was ripe enough to commence to granulate in the tank in a few days.

The removal of over a ton of this dark honey enabled me to secure a better grade of honey from the second crop of alfalfa.

The only admixture thereafter was a small amount of tar-weed honey.

Sweet clover was also a small factor in our honey production. The late Mr. Levering went east a few years ago, and upon his return he brought with him the seeds of sweet clover, motherwort, catnip, and other plants, for introduction here. The sweet clover took hold of the soil real well here, and, after a few years of trial, Mr. Levering wished he hadn't done it, and tried to eradicate it; but it was too late, for it is scattered more or less through Scott Valley, and is considered by some an obnoxious weed. From my observation the bees work upon it industriously. Mr. Levering was passionately fond of flowers, and his little cabin was surrounded with them in great variety, and his place was noted for its beauty.

The season was an extremely poor one for comb honey. If we had depended upon that for our income we should have had to economize still further in the household expenses.

The late Mr. Levering had progressed far enough to commence the use of the 4¼ x 4¼ sections. The upper surface of a Harbison hive is not easily fitted with these sections, and Mr. L. put them in one at a time, tiered up three in height, with no crate to hold them.

Digitized by Google

Quite a number of hives had these sections still in place all empty, but glued tight. Well, now, you better believe it was a job to get them out without breaking them; and if Mr. L. could do it when they were filled with honey, and not break them, he had an exemplary patience; and if he could handle those sections one by one, and get them out of ten hives per day, he was a rapid workman.

To work the sections without too much strain on my nervous system, the judge and I devised a crate to hold 18 sections, and put on 100 of them; and at least 900 of the sections in those crates were filled with drawn combs. We found quite a difference in the workableness of drawn combs. If the bees had drawn out a comb and left it with no honey in it, there was a hard ribbed edge to every cell, that they were loath to use; while if the comb had been filled with honey, and extracted, or if it had been recently eaten out by the bees in the process of feeding, they were more liable to get to work upon it. In the former case the ribbed edge needed to be trimmed down or leveled; but with all of our drawn combs we were barely rewarded with more than 800 lbs. of honey in sections.

The new combs that were fitted into our extracting-frames were neglected in the same way by the bees. Two new combs in a super, with five old ones, would in many instances be entirely neglected, while the old combs would be filled with honey. I have seen this same preference shown by bees in Southern California. I attribute it to the fact that an old comb is a warmer surface to work upon. It retains more or less heat from the brood-chamber, while the new comb retains none. This preference is also shown more where cool nights prevail, and where the queen is not prolific enough to fill the hive cram full of bees Several conditions seem favorable for such a state of things, and we had them all in full force in this apiary during the past season.

It seemed that, while the judge and I were striving to impress the heirs of the estate with the importance of bee culture, and trying to get a large yield of honey and a good amount of cash, the bees resorted to many ways to baffle us.

HONEY IN PLAIN SECTIONS PUT ALL OTHERS IN THE SHADE AT THE MARLETTE FAIR; DEEP ENTRANCES.

I tried the plain sections and fence this season. I got my supplies from Mr. Hunt, Bell Branch. I like them very much. I shall use more next season. The honey looks much nicer in plain sections. My honey put all the others in the shade at the Marlette fair. I I think I should like the fence a little lower than the sections. I noticed this fall the bees glued the space full so you could not look into the super. I think I shall cut mine down ¼ inch. Would it not be better to have the slats a little further apart so the bees can pass through? I tried the S fence by holding it at the entrance when the bees were at work, but not a bee went through, either coming in or going out. I think the deep entrance is all right. I made mine this year ⅞. My old hives were ⅜; and as soon as it got pretty hot the bees hung out quite badly. I then put strips ⅜ inch under the hive (sides and back), and the bees went to work, and bothered but little after that.

I like GLEANINGS very much in all its different parts. I should not like to do without it. WM. STILES.

Burnside, Mich., Dec. 5.

[You will see in our Dec. 15th issue that the fences for 1899 will be ¼ inch narrower at the top and bottom, and that the slats themselves will be a little further apart than last year. It is true that, in some cases, the bees filled the spaces above the cleats on the last-year fence with glue. While there are only occasional reports of such propolizing we thought best to make a change — make cleats come flush with the tops of the slats.—ED.]

MY APICULTURAL CREED; GOLDENROD A FAILURE; LARGE HIVES; T SUPERS; TEN-CENT COMB HONEY, ETC.

The honey crop was a perfect failure here this season. A sixty-days' drouth, with the exception of three local showers during May and June, did it up.

I believe goldenrod has always received more praise than it ever deserved. It is very abundant here, but it is seldom visited by bees. During ten years I have seen bees working on it but four times.

I believe in Dadant's arguments for large hives. My hives are nine-frame Langstroth.

I am a believer in Dr. Miller's T tins and section cases. I don't believe they will ever be excelled.

I believe your fence will be a success with men who make a living by bee-keeping; but with a majority it will never be used.

I am a small bee-keeper. I follow, never lead. It is a side business with me; but if I were going to make any change in the size of sections I would make five tiers fill a L. section case, say 3½ x 5, and just wide enough so each section, when well filled, would hold one dime's worth of honey at the rate of 12½ cents a pound. My reasons are these: A dime is a standard coin, easy to make change, easy to sell. Almost any person can raise a dime who wants honey; and 12½ cents is as near a standard price as any thing can be. When I was a small boy we lived near Wooster. My mother bought honey of a neighbor at 12½ cents a pound, and I went and took it home. She also got some honey from the same neighbor at $1.00 a gallon. It was candied, the first I ever saw. These things occurred in 1832. Taking prices then and now, and for ten years or more, I think 12½ cents for honey is as near a standard price as a dime is a coin; and I believe such a section would meet with general favor; and, to use a nursery-

Digitized by Google

man's language, when a fine fruit is brought to notice, it "would fill a long-felt want."

AN EXCELLENT METHOD FOR STOPPING ROBBING.

I will give you my plan of stopping robbing. Whenever one hive commences robbing I take the weak hive, the one that is being robbed, and set it in some other place. I then take one of my strongest hives and place it where the robbed one was. I do this in the evening. Next morning early the robbers go to work. The robbers always commence business early. But they meet a powerful resistance, and, after fighting awhile, give it up. If one powerful hive did not whip them out I would give them another. But I never had to give a second one. This is original with me. It has always worked successfully.

You always want to know what your readers think of your journal. Well, my opinion is you can't make any improvement.

JOHN BARFORD.

Cross Keys, Ga., Dec. 13.

SWEET CLOVER.

I have always thought that one writing on any subject ought to have a practical knowledge of the subject. I am more confirmed in this since reading the letter written by L. W. Sawyer (see p. 893, Dec. 1st issue). He certainly doesn't know what he is talking about. One would naturally suppose, by reading his letter, that he was a large land-owner with cattle upon a thousand hills, and that sweet clover had become a great nuisance to him, when the facts of the case are he doesn't own a foot of land, but rents just one acre upon which he raises a few beans and potatoes, and has about 40 colonies of bees. There is no sweet clover in this country, to speak of. I will agree to wheel all there is within ten miles of Mr. Sawyer's lot, on a Daisy wheelbarrow, and I don't think it would make a load. Now, Mr. Sawyer is generally considered an honest man and a good citizen; and what in the world ever made him slop over in that kind of a way I don't know. Sweet clover may be a bad thing, and it may not. I am just like Dr. Miller in one respect—I don't know.

REPAIRING BRUISED COMB HONEY.

I have never seen any thing in GLEANINGS in regard to soldering broken sections, and I just wondered if any one else had ever got on to it. When I am casing up honey, if I punch a hole in a section it is ruined as first-class honey, no matter how nice the section in other respects. One day I was working near a hot stove, and broke an exceptionally nice section. I picked up a case-knife and held it on the stove until it was quite hot, then smeared it over the hole, when, presto! the hole was closed good and tight. It left a thin covering of wax over the honey that made it as good as ever. Since then I have saved a good many dollars' worth of honey from going into the third-rate lot. If the hole is very large I drop on a small piece of white comb from an unfinished section. Try it. E. A. EMMONS.

Tampico, Ill., Dec. 20.

VENTILATION AFFORDED BY FENCES.

I don't see any aptness in R. L. Taylor's illustration of a wicker chair in a room. It doesn't fit the case. If he wants it put in epigram, here is one that is more of a correct simile: Which will be better ventilated, a box or a crate standing in a room with a window or door open? and if the room be filled with boxes and crates, which are better ventilated? Moreover, ventilation is sidewise as well as vertical, even naturally, to say nothing of the currents caused by the bees fanning. Can not a room be ventilated by opening a door in the side nearly as well as by opening one in the floor or ceiling? Hence I agree with you, and not with Dr. Miller's Straw on p. 825, Nov. 15.

Monterey, Cal. A. NORTON.

HONEY-LEAFLETS NOT A SUCCESS FOR SELLING HONEY.

In GLEANINGS for Nov 15 you ask if the honey-leaflets have been a success in selling honey. Not with me. I don't think one in ten reads them. I have never thought the name was suitable—sounds too dry. How would "All about Honey" do? I am not sure they have ever sold a pound of honey for me. I have distributed several hundred.

Clinton, Ill. HENRY WILSON.

[Let's hear from others. This makes the second unfavorable report.—ED.]

HONEY SOAKING IN CYPRESS BARRELS NOT SERIOUS.

In regard to cypress barrels, such as I use are of best seasoned cypress. When dry (empty) a barrel will weigh 48 to 51 lbs., and half-barrels 27 to 29 lbs When filled with honey for several weeks, and then emptied and placed so as to drain thoroughly, a barrel will gain by absorption from 5 to 6 lbs., and half-barrels 3 lbs. I have the best of Fairbanks' scales, and have tested barrels and half-barrels again and again. Half-barrels (cypress) are far preferable to any other packages for shipping honey.

Greenville, Miss. O. W. BLANTON.

THE DANZENBAKER HIVE.

I have used two of the Danz. hives during the past season, and, comparing the results with the Dovetailed hives, the Danz. makes the better showing of results. With my short experience during the season, which has been poor for honey, I am very favorably impressed with this hive, and would inquire if you anticipate making any change in the construction for 1899. J. K. GOODRICH.

Waterbury, Conn., Oct. 24.

GOOD NEWS FROM CALIFORNIA.

Southern California has at length had a rain. We did not get much here in Los Angeles, but the interior had quite a downpour; and with the rain came the unusual phenomenon of snow. Several inches fell in Riverside and adjacent country. The bee-keepers and ranchers are accordingly much encouraged. We are hoping for a continuation of these favors. J. H. MARTIN.

Shermanton, Cal., Dec. 10.

Digitized by Google

A PLEA FOR THE FARMER BEE-KEEPER.

I see quite a good deal in the bee-journals about farmer bee-keepers, and about their selling black and inferior honey at low prices, and spoiling the market for the expert bee-keepers I see on page 879 Mr. Boardman has something to say about this. Now I want to know why the farmer can get any darker honey than the expert bee-keeper. Do the experts stand at the hive and clean off the bees' feet before they go in? or do they keep a mat at each hive for the bees to clean their own feet on? or do they train them to gather the white honey and leave the dark out?

In regard to farmers selling their honey cheaper, it is not so here, for farmers take their honey to the stores and trade it for other goods, and get the same as they retail it out at, and that is 15 cts. per pound. I am a farmer bee keeper, but I always get the latest style of hive, sections, and fences.

Wakefield, Neb., Dec. 15. R. CHINN.

[You would not be classed as one of the "farmer bee-keepers" complained of. It is those who use old box hives, and sell either chunk honey or honey put up in old dirty last-year sections. In a word, it is the don't-care slovenly fellows, farmers or any one else, that demoralize the markets. Because one is a farmer it does not follow that he can not produce first-class honey. Why, I should say nine-tenths of our best bee-keepers are also farmers.—ED.]

DEAD BROOD OR FOUL BROOD.

I had eight or ten hives containing dead brood the past season. Some of them dwindled to nothing. I united some with other colonies. Some of them had no queen. What you say in GLEANINGS, page 803, will explain that; but some had queens. I took one of the queens and introduced her to another colony that was queenless, and they raised healthy brood. Is there any danger of this disease becoming serious? Is it contagious?

There have been other cases of it in this part of the country. What is the proper thing to do with diseased colonies? I have had fears that it was foul brood; but it does not quite answer the description. The brood dies, turns brown, and dries up before being sealed. Some dies after being sealed.

Ohl, Pa., Nov. 7. M. GUMBERT.

[What you describe I take to be dead brood. This malady is nothing serious. Some seasons it will appear, and then again it will not show itself for several seasons. Comparatively little of the brood dies, and usually the malady will disappear of itself. It greatly resembles foul brood, and the only distinct differences are, first, it is not contagious; and, second, very little of the brood dies—only here and there scattering cells.—ED.]

THE IDEAL SUPER; SQUARE SECTIONS; WIDTH OF CLEATS OF FENCES.

I have been interested in bees for seven years, and have been a reader of GLEANINGS almost as long. I have used tall sections three seasons, and have no use for the square ones any more. I was much interested in reading Dr. Miller's article in GLEANINGS for May 15, on the Ideal super, and also in Mr. W. C. Gathright's article and Dr. Miller's reply in the Nov. 1st number. I have used a few Ideal supers this past season, and think they are the best and simplest supers in use. I have used section-holders six seasons, and will discard them as soon as possible. A super like the Ideal, with slats, can be filled and emptied much quicker than one with section-holders. The Ideal can be emptied the same as Dr. Miller empties his T supers, illustrated in the A B C of Bee Culture. I think if the editor will try filling a few Ideal supers and a few with section-holders he will be convinced that slats are ahead of section-holders.

There were a few faults in the construction of the Ideal super, fence, and sections. The five sections in a row are about ⅛ inch shorter than the fence. I think the row of sections should be a trifle longer than the fence so the sections could be tightened endwise with a thin strip between the section ends and the super end. Would it not be better to have the tin strips that the slats rest on made wider, and folded back ⅜ inch like this? The way they are now made, they sag between the nails. Don't you think the cleats on the fence are too wide? I filled the sections full of foundation, but the honey was rounded off at the edges opposite the cleats, and the row of cells next the wood left unsealed. I want my honey filled like Mr. Danzenbaker's, and the cleats on his fence are not as wide as the Ideal fence-cleats. Don't you think it would be better to have the cleats long enough only to touch the top and bottom slats about ⅛ inch? I admire the honey that Mr. Danzenbaker and Mr. Aspinwall produce in plain sections, and hope the Ideal fence will be so made as to give like results.

Lamoni, Iowa. W. H. DANCER.

[Most of your questions are answered in our Dec. 15th issue, and I would therefore refer you to that number. As to a folded tin for section-holder bottoms, that would be a doubtful improvement, as it would take up too much room. If we did any thing we would make the tin heavier.—ED.]

ABSCONDING SWARMS—WHOSE PROPERTY?

If an apiarist follow an absconding swarm of bees, and they settle on another party's property, can the apiarist claim his bees by law, if he has seen them traveling there?

If a person finds a swarm of bees settled (no one knowing where they came from) on another party's property, whose are they by law, in case both parties claim them?

Red River, O. J. B. COOL.

[Bees belong to the one who first discovers them, no matter where they came from nor on whose tree or land they may be on; but the finder of the bees can not go and take them against the wish of the owner of the land on which they may be. As to how they would then settle their difficulty, I am not lawyer enough to say; but if I were in that fix I would submit to arbitration rather than have any row.—ED.]

Digitized by Google

PROSPECTS look a little discouraging after all, in California, in spite of what is said on page 18. A later note from Mr. Martin says there was no rain last year, and but little up to date this year, comparatively. But it is an old adage with the West Coasters that they never have two dry seasons in succession, so there is still hope.

FRIEND Dadant, in his article in this issue, last paragraph, asks some pertinent questions. I do not know that I care to have them answered in GLEANINGS, as we really have not space for social and political discussions; but one can not help smiling when he thinks of the various foibles that cling to the twentieth-century civilization.

IN our last issue, in reference to the fence question I spoke of Mr. Holtermann's having borrowed certain cuts from our catalog and using the same in his journal as a boomerang on the Root Co. After the matter had gone to press, and too late to make the change, I discovered my error. The cuts were bought outright, and I cheerfully make the correction as simple justice to Mr. Holtermann.

THE prospects in the supply line look almost as flattering as last year; indeed, our new engine, that we supposed to be ample for our work, is now pretty well loaded down. We shall have to speed it up and increase the boiler capacity in order to be able to handle our factory. We shall be taking, during the next three months, nearly 300 horse power, and nine-tenths of all our work relates to bee-keeping.

THERE seems to be a demand for a slatted separator—a separator made of slats the same as the fence, but without cross-cleats, so that it can be used with old-style sections. We shall be able to offer these to our customers, as well as the fences. While they will, no doubt, be an improvement over the plain solid separator, they probably will not give the results secured by the fence and plain section in combination.

INVENTING NEW HIVES.

IN the *Revue Internationale* for November, Mr. Ulr. Gubler, a distinguished bee-keeper of Europe, has the following to say in his "Advice to Beginners:"

> The bee-keeper who knows how to handle tools likes to try to make his own hives, and therein we have only words of encouragement. But let him confine himself to systems approved by the experience of our masters. Refrain from a tendency to make new things, to introduce pretended improvements, before knowing thoroughly the nature of the bee and its needs. The hives that we possess are the result of the studies, the experiments, and the discoveries of a great number of bee-keepers and experts of all lands; and to desire to make new is simply to render oneself liable to pay dearly for the experiments that others have made before us.

JOURNALISTIC COURTESY.

IN the last *Am. Bee Journal* Prof. Cook refers to the time in the early 60's when even the fair name of Langstroth was traduced, and bee-periodicals were casting serious reflections upon each other. He tells how, in these later years, this thing has disappeared; and although he does not refer particularly to the *present* time, I am rather of the opinion that the article would not have been written except for some things that have appeared in our late current literature.

If the bee-journals of to-day are showing a tendency to degenerate into the ways of old, let them mend their ways at once. I always believe in fair honest criticism, even to the extent of plain talk when the exigencies call for it; but this latter should always be used sparingly.

Mr. York, of the *Am. Bee Journal*, in commenting editorially on Prof. Cook's article, says: "We think all apiarian editors, not excepting ourselves, need to devote a little more thought to this matter than, apparently, has been given to it in the past few months." I will subscribe to the statement. I will do all I can, so far as our publication is concerned, in making 1899 a new year. Nay, further: I am not ashamed to make reparation if I have wronged a brother.

THE ASPINWALL MACHINE SECTION-CLEANER.

IN our last issue I spoke of the fact that we were considering the manufacture and sale of a machine section-cleaner. The fact that it was invented by L. A. Aspinwall, that Jackson bee-keeper who produces such fine comb honey—the man who is the inventor of several useful agricultural machines, also inventor of the Aspinwall hive, separator, and super—is evidence sufficient, to my mind at least, that he has a machine that is a success. Here is what Mr. Aspinwall says of it in the *Review:*

> Referring to section-cleaners and section-cleaning, the plain sections offer obvious advantages in favor of their adoption. However, the wonderful success of my present machine is certainly greater than I first anticipated, it being adapted not only to plain but to old-style sections. The speed attainable in cleaning plain sections is far greater than I first supposed could possibly be. The highest speed I have thus far attained was at the rate of 192 sections per hour, being upward of 2000 per day. The test of speed, however, was upon a few, and possibly with a larger number I should have failed to maintain that record. Still, I am by no means an expert as yet; but I believe that, in the hands of such, 100 sections could be cleaned per hour.

Mr. Aspinwall, I believe, has it nearly perfected. As soon as it is he is to send us a machine, and then we will see what we can do about putting it on the market, if all goes well.

NUMBER OF COLONIES AT THE HOME OF THE HONEY-BEES; WHY WE WINTER OUT-DOORS.

WE now have in the apiary, safely put away in winter quarters, 252 colonies. A part of this number is made up of colonies from the out-apiary, which this year were brought home to avoid the depredations of thieves.

We winter wholly outdoors in double-walled

Digitized by Google

chaff-packed hives, and our percentage of loss for the last 15 or 16 years usually runs about three per cent. Not only that, we have strong vigorous colonies in the spring. Our locality is too mild at times to warrant the greatest success, for us at least, with indoor or cellar wintering. After trying the two methods side by side we found the outdoor plan gave us better results.

FIVE-GALLON SQUARE CANS; A GOOD ARGUMENT FOR THEIR USE.

ON page 886 I had something to say about barrels and square cans. Referring to what was said about both in the bee-journals, Mr. Leahy, in the last issue of the *Progressive Bee-keeper*, says:

We used to buy in barrels and kegs, but with us the loss of honey by use of barrels would more than pay for cans; in fact, we were often compelled to empty contents of barrels into cans after we received the shipment. We have no home consumers who will take a barrel of honey, nor yet a half-barrel; but we have many who buy a 5-gallon can from us every year. A can can be set in a warm place, and the honey be kept liquid, while a barrel or a keg can not. Five cents will furnish a nice 2-inch honey-gate, that you can give to a customer to draw the honey from a can with, while it would take 25 or 50c for a faucet with which to draw the honey from a barrel or keg. Our experience has been that panel cans will not crack while being roughly handled; and as they cost no more than cans with straight sides, we advise the use of cans, and panel cans at that. If you have any honey in barrels to sell, please don't let us know any thing about it; but we want some good alfalfa honey in cans.

It is true that a five-gallon can is just right for family size. Whenever we get some extra choice extracted honey, thick in body, fine in flavor, I just take a whole can of it "over home." I always like to treat my bee-keeping visitors to the best honey there is to be had in the United States; and usually (not always) at our house we have something in that line fit to set before a king.

One of these 60-lb. square cans can be set in the house anywhere, next to the stove or down cellar; but it would not do to set a *keg* of honey in a *hot* place. Say, brethren, would it not be a good idea for us to talk about a family can of honey, just as we talk about a family flour-barrel? There are hundreds, yes, thousands, of families that lay in a stock of eight or ten gallons of maple syrup, and why not honey in equal quantities?

COGGSHALL AND HIS OUT-APIARY HELP; BICYCLES FOR OUT-YARD WORK.

I HAVE already spoken of my visit to Mr. Coggshall about the middle of last October. At that time Mr. C. gave me a photo showing him and his men preparing to go to their out-yard. This I have since had engraved, and show on page 10.

The view was taken just in front of Mr. Coggshall's beautiful residence. Mr. C. and one of his sons are in the wagon. The others stand by their bicycles ready to start. When they go to their out-yards all the helpers go together, some in the wagon carrying empty supers, etc., and the rest going on bicycles. The wheels are used because they enable the men to go in separate groups from one yard to another. They usually go in pairs to each yard. One pair may precede the rest, get things ready and hives opened up, when they will be joined by one or two more.

You see bicycles enable the men to go and come as they please; and when one or more can't work to advantage at one yard they mount their wheels and go to another.

Wheels are an advantage over horses in another way: bees can't scare or sting them, and at Coggshall's yards this is quite an item.

At each out-yard there are smokers, veils, extractors, kegs, and every thing else necessary to carry on the work of an extracting apiary; so all that is necessary for the boys to do, usually, is to mount their wheels and ride to the several yards.

Niver tells a story about Harry Howe that I can't help repeating here. As nearly as I can remember, the facts are these:

Mr. Niver went over to call on Coggshall, on the first of September. Harry was helping to thrash. Said Mr. Niver to Harry:

"Busy nowadays?"

"No, not very," said Harry.

"What have you been doing?"

"Why," said Harry, "this being the first of September I had to go hunting; walked seven or eight miles; shot several squirrels, and got back in time for dinner. After dinner Lamar wanted me to go to one of the out-yards and take off 200 supers. This I did, and got back about four o'clock, going some fourteen or fifteen miles. As I had a little time left I turned in and helped the thrashers."

"So you haven't been very busy, eh? Let's see: You walked seven or eight miles, and brought home a string of squirrels; wheeled some fifteen miles, took off 200 supers, got back home, and then helped thrash!"

"That's Harry all over," said Niver. "Yes, and for that matter that is about the way Coggshall and all his men work; and then if you ask them if they are busy they simply say, 'Oh! not very.'"

At the time I visited Mr. Coggshall he was husking corn. I asked him what he was doing that for.

"Well," said he, "there was nothing particularly to do, and I thought I might as well husk as do nothing."

"But," said I, "a man who works as hard as you do, at steam-engine pace, ought to have, it seems to me, a little breathing-spell once in a while."

"Breathing-spell! Why, to loaf," said Mr. Coggshall, "would kill me quicker than to work."

SNOW AROUND THE ENTRANCES OF HIVES.

VERY frequently lately the question has been asked whether snow should be swept away from the entrances of hives, especially when it is drifted around about the hives as it has been in most northern localities within the last two or three weeks. I have been in the habit of giving the advice to let the hives alone; that, unless the snow is drifted very badly, there is no danger of smothering the bees, for the snow, if it is light, is full of air; and as to protection, nothing could be better.

Digitized by Google

Said one of our neighbor bee-keepers, "There is nothing I like to see better than my hives buried up in snow, because then I know they are going to winter well."

But the snow is gone, and has been for a week. We had one of those old-fashioned "January thaws" in December, and since that time no questions have been asked about sweeping away snow.

DOOLITTLE ON ADULTERATION.

BROTHER DOOLITTLE, in the *Progressive Bee-keeper*, thinks there is more noise about adulteration than the facts will warrant; that there is less adulteration now than formerly. If Bro. D. will go over the markets as some of us have done, especially in the large cities, I think he will have reason to change his mind. It is true, honey has come down in price, and so also has glucose, and very nearly in proportion. If friend D. will take the pains to get the price on glucose by the carload he will find that there is a good margin for adulterating yet. If there were not, there would not be so much of it.

I dislike to talk about adulteration as much as any one; but if we bee-keepers try to cover up the fact, or try to convince ourselves that it is not as bad as some folks think, the glucose-mixers will take new courage. All they want is *to be let alone*. In that respect they are like the saloon-keeper, whose business Bro. Doolittle and I mutually despise.

DANZENBAKER HONEY NOT OVERDRAWN.

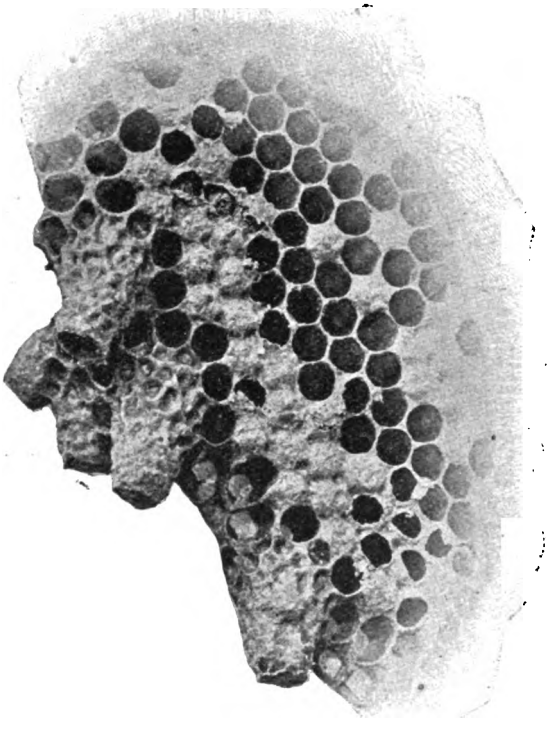
IN our last issue I spoke of the fact of there having been some criticism to the effect that the illustrations in the *Review* and GLEANINGS, showing honey in plain sections, were hardly fair.

I have just received a letter from Mr. J. E. Crane, of Middlebury, Vt., who, after leaving Medina, went to Washington, and there visited Mr. Francis Danzenbaker. After looking over his honey he says: "I do not think that the illustrations of his honey have been overdrawn." I thought so all along myself, but I did not venture the statement, as some, at least, would think I was a prejudiced authority. Mr. W. Z. Hutchinson, a man who has been admired for his fairness, has spoken in the highest terms of Mr. Danzenbaker's honey; and if there is any man in all beedom who knows how to produce a gilt-edged article, it is Mr. Danzenbaker. I have seen but very little of the honey produced by L. A. Aspinwall, of Jackson, Mich.; but from what I have heard of it, I should say it is fully equal to Mr. Danzenbaker's.

It seems to me, friends, we should throw aside prejudice, and learn whether there is any thing in Danzenbaker's and Aspinwall's systems of honey-production. I am well aware that not *all* fence honey by considerable is equal to the specimens shown in GLEANINGS, from Messrs. Danzenbaker and Aspinwall. Yes, some of it is at least no better than honey produced in old-style sections; but this difference, I think, is due wholly to the construction of the separator or fence.

QUEEN-CELLS; NATURE AS IT IS.

SOME little time ago Bro. Hutchinson sent me a photo he had taken in miniature, representing some queen-cells. The thought occurred to me that this might be enlarged to life size. Accordingly I sent it to our engravers, and asked them to enlarge it to show five cells to the inch. The results were so satisfactory that I immediately sent a proof to Bro. Hutchinson, saying I thought he had a prior right to it—that I would not use it till he had used it in his journal. In due time it found its way into the columns of the *Review;* and now I take pleasure in presenting what I call a work of art in photography and half-tone—a work of art because it is nature itself.



Many times beginners have had a wrong notion as to what constitutes a queen-cell; but here is an illustration that will show exactly what it is like.

Digitized by Google

Our Roll of Honor.

Symposium of the Veterans, or Those who have Taken Gleanings for 25 Years, More or Less.

In our last issue we promised a little present to the veterans. Well, it hardly seems worth while to draw the line too sharply at just 25 years. Quite a number have taken it for 20 years, some 23, and some 24; and in order to do justice to all, we have decided to send one number of GLEANINGS free of charge to any one for every year he has taken and read it in the past. Thus, you see those who have taken GLEANINGS for 20 years will have 20 issues free, those of 24 years a whole year free, and so on.

Several mention the time when GLEANINGS was printed by windmill power. "Vol. I. No. 1" is dated Jan. 1, 1873; but it was first taken from the press, as I explained in our previous issue, Dec. 6, 1872, and the printing was done at the office of the Medina *Gazette* for the first year. But Jan. 1, 1874, however, we had a press of our own, and the first issue for the year was printed on this press, your humble servant running it by foot power when the wind did not blow; but when the wind did blow I had a mechanical arrangement so that a large windmill (put up for cutting up stuff for hives, etc.) would follow up in the rear, and finally relieve me from working the treadle when there was wind enough. A good deal of the time the printing was done partly by wind power and partly by foot power—that is, the two pulled together. I remember one night when we were late I made preparation to run the press all night. As there was not a breath of wind there was no way but to tread it out. About ten o'clock, however, a breeze sprang up, the press kept going faster and faster; but as the wind came up gradually I learned to feed as the speed increased; and under the inspiration of seeing my two hobbies at the time work together (the printing-press and the windmill), I put in the sheets so rapidly that I was through and at home not much after midnight. Of course, there was some grumbling among the subscribers because some of the sheets were printed crooked; but when I explained the matter they were very kind and forbearing, and let me down easy. After that it began to be a kind of standing joke that any crookedness (either in the journal or bee-hives) was to be attributed to the irregularity of the *windmill*. Before Vol. III. was out, however, the wind proved to be too uncertain for the hive trade as well as for our enlarged circulation, and a 4½-horse-power Bookwalter engine was put in to supplement our power when the wind did not blow; and for a while both the windmill and the engine pulled together quite amicably. Now, then, let us hear from the veterans:

GLEANINGS has come to my home continuously since the first number. I have kept the numbers. Honey-producing has been my principal pursuit all these years. As might be expected, the enthusiasm of the earlier years has materially abated. An interest in intensive farming, fostered by GLEANINGS, is my present hobby. T. P. ANDREWS.
Farina, Ill., Dec. 21.

I have taken GLEANINGS for over 25 years. I wish you a merry Christmas. D. H. TWEEDY.
Dillonvale, Ohio, Dec. 23.

I am unable to fix the exact date of my first subscription to GLEANINGS, but I know that I have the 26 volumes complete, *not one number missing*.
E. Springfield, O., Dec. 23. R. M. REYNOLDS.

I commenced bee-keeping 21 years ago last fall, and have been a constant reader of GLEANINGS during that time, and am pleased to say that I am a paid-up subscriber. I can say that, for these 21 years, I have read GLEANINGS with much pleasure and profit. Wishing it a long life and a wide circulation I am
Yours respectfully,
Battle Creek, Mich., Dec. 21. W. S. WRIGHT.

As you request in last GLEANINGS, I will say I commenced to keep bees Jan. 5, 1872. I think about two years after that I heard of GLEANINGS, and have been a subscriber ever since, and have all the numbers ever printed, having sent for all back numbers. I have every one preserved up to present time without a missing number; also the *American Bee Journal* for the same time. I shall be 71 years old next June.
Newburgh, N. Y., Dec. 22. MARCUS D. DU BOIS.

I remember very well when, 26 years ago, I received No. 1 of GLEANINGS. I have every number of the paper from that day to this, and, still better, my subscription for 1899 is paid. Age tells, so I can not get around among the bees now as I did 25 years ago; but my two little boys are a very great help to me in the management of my 65 colonies. WM. WILSON.
Bardstown, Ky., Dec. 23.

I have taken GLEANINGS from the time you printed it by wind power. I got interested in apiarian pursuits over forty years ago by reading Langstroth's book. I have had as many as 225 colonies. In the summer of 1883 I harvested 12,000 lbs. of honey. I am still in the business. I could not do without GLEANINGS. Long may it live, and eternity only will tell its influence for good. GEORGE BRIGGS.
New Sharon, Ia., Dec. 22.

You may remember "Novice" and the *A. B. J.* of Washington, D. C., and the cistern that came so near being filled with honey, and the large queen ("Giantess") that was followed to the woods, and a certain jeweler who fell in love with bees. Well, I am one who has read after him more than 25 years, and am yet reading GLEANINGS. I hope you may be more and more useful to the end, and receive a crown of life. J. B. DINES.
Libertyville, Mo., Dec. 22.

I am one of the number that have taken GLEANINGS for 25 years or more. I received the first number that you printed, and have received a copy of every number that has been printed since. I have never missed a number in the 26 years. I have a likeness of you with Blue Eyes on your lap I have been at your place, and seen you and Blue Eyes; also your wife and your brick house, and hope to see you again—if not in this world, in the world to come. A. J. HOOVER.
Dorranceton, Pa., Dec. 22.

I am an "old timer." I used to read Novice's writing in *American Bee Journal* when published by Samuel Wagner, in Washington, D. C., and have never missed an issue since GLEANINGS was first published. I have had considerable dealings with the publisher, and have no fault to find. I am a native of Ohio—was born in Brownhelm, Lorain Co.; moved from near Oberlin to this county in 1852, and settled on the farm that I now own and occupy. I have made a success of bee-keeping, take it all together.
Farley, Iowa, Dec. 23. JAMES SCOTT.

I have watched your progress ever since you commenced writing for the *American Bee Journal*, for I have taken that journal from No. 1 until the present, and I have also taken GLEANINGS from its beginning until now. In fact, we feel pretty well acquainted with you in many respects. Most of this time I have been in New Hampshire, but for four years past have been sojourning in this mountainous region of Western North Carolina.

I first became a bee-keeper the day I was 18 years old. I came here to escape the rigors of our New England winters, and find I can be much more comfortable. I have had something to do with bees here, but am not largely interested in them.

If in your travels you can find time to call here you will be warmly welcomed by several of your custom-

Digitized by Google

ers, including the subscriber. I often think of the pleasant time I spent at your place a few years ago.

Hendersonville, N. C., Dec. 21. J. L. HUBBARD.

In last GLEANINGS you invite the oldest subscribers to stand up and be counted. Well, I have had a copy of every page of GLEANINGS that was ever issued; and, if memory serves me well, I was a deeply interested reader of "Novice" in good old Uncle Samuel Wagner's *American Bee Journal* for some time before GLEANINGS was born. I have followed you with the deepest interest through all your bee career, and, in a small way, have been a patron and correspondent. Prosperity always excepted, very many of my experiences have been notably like your own, even to my "Giantess," the largest and most beautiful queen I ever saw. Do you remember yours? I have also been for forty years a Congregationalist, and many years deacon and Sunday-school superintendent, and have always read Our Homes with much interest.

Excelsior, Minn., Dec. 23. J. W. MURRAY.

I have the first year's volume now as you sent it, bound with metal clasps. I have piles of the back volumes and some "Juvenile" GLEANINGS. I have many things about my premises that remind me of Medina and the Root family—among them a large extractor, the insides and gearing from you; also a sawtable and appurtenances, and many other minor conveniences. Bee-keeping has always been a subordinate branch of my industries, but GLEANINGS has always had its interest and charm for me, and none of its departments have been skipped. I have that friendly feeling and love for the whole Root family that any one who has read GLEANINGS so long *must* have. The Home Papers and the gardening notes have all reached me. I heartily congratulate you on the full-grown, healthy, and clean GLEANINGS which is now before me, and I trust it may continue to come as regularly into my home in the future as in the past.

Burlington, Vt., Dec. 22. A. A. LEWIS.

My time dates even back of 25 years to the little leaflet printed quarterly by the windmill—yes, and back into the old *American Bee Journal*, 1869 to '73, have I read with so much pleasure and interest from the pen of our old and worthy friend Novice. Now that you ask for responses from your earliest and continued subscribers, it gives me great pleasure to be enrolled as one of them. Well do I remember the changes in appliances and improvements wrought out in those 25 years. I wish also to mention my appreciation of the Home Papers, tending to elevate and bring us to a higher plain; High-pressure Gardening, Notes of Travel, the Rambler, and poor old Father Merrybanks, all of which must be appreciated by your many subscribers.

What a reunion these 25 year subscribers would make! and what a bee convention! How I should like to attend, and hear the very friendly and interesting discussion of changes during the past quarter century! And now, friend Root, may you be spared for many more years; and may GLEANINGS continue to be our half-monthly visitor in the future as in the past. F. H. CYRENIUS.

Oswego, N. Y., Dec. 20.

In 1871 or '2 I had a very severe attack of bee fever, and gathered and read and studied all in the line of apiculture that I could get, and spent many sleepless "though pleasant" hours after I retired at night, thinking and studying of the bee and its nature. Through the kindness of some one the first issue of GLEANINGS was placed in my hands. I was so pleased with it that I became a subscriber, and have been a constant reader of its pages ever since, and have the entire volume of GLEANINGS on file except a few numbers and one volume that I loaned to some of my friends that were interested in bee culture, and did not return it. GLEANINGS has been a pleasant and instructive visitor all these years at our home. "Our Homes" has caused many bright and happy hours during these years, and I trust it may cause many more in the eternal home beyond.

High-pressure Gardening and Notes of Travel have also been a source of great pleasure.

I wish GLEANINGS continued success, and expect to have it visit my home many years yet, and can join heartily in your wish that we could get together and tell stories about old times; but though we may not meet here I trust and pray that we may meet beyond the river of time, where we have the promise, if we are faithful, that we may enjoy far greater blessings with Him who has gone before to prepare a home for those who will be his followers.

Arendtsville, Pa., Dec. 21. AARON I. WEIDNER.

We notice your call for the names of those who have taken GLEANINGS for 25 years or more. We claim a front seat in the list. We have taken GLEANINGS since its first number, though we have had to pay for but a few subscriptions, owing to our becoming advertisers before the end of the second year, and therefore had the paper kindly sent to us free ever since. We have been contributors to and advertisers in GLEANINGS ever since 1874, our first advertisement appearing in the September number, and our senior's first contribution some time during the previous spring. We have sold to you and bought from you thousands of dollars' worth of bee-goods, and have looked in vain for another firm which has been as closely connected with yours in a friendly or in a business way as we have been. We have preserved every number of GLEANINGS, and also have a full file of the *American Bee Journal* since its first number in 1863. We have also almost all the copies of Moon's *Bee World*, *The National Bee Journal*, *The Illustrated Bee Journal*, *The Bee-keepers' Guide*, *The Bee-keepers' Magazine*, *The American Apiculturist*, and also of all the bee-journals that are still published in America. In addition we have preserved sample copies of many ephemeral sheets, the perusal of which ought to discourage any beginner from attempting additional publications in a field that is so well covered. I will name a few: *The Indiana Bee-keeper*, *The Bee-keepers' Exchange*, *The Kansas Bee-keeper*, *The Bee-keepers' Instructor*, *The New England Apiarian*, *The National Bee Gazette*, *The Texas Bee Journal*, *Our Apiary*, *The Bee-keepers' Advance*, *The Western Honey Bee*, *The White Mountain Apiarist*, *The Practical Bee-keeper*, *The Bee-keepers' Enterprise*, *Success in Bee Culture*, *The California Bee-keeper*.

Among the foreign bee-journals we have full files of the *Revue Internationale*, of Switzerland, *L'Apicoltore*, of Milan, and *L'Apiculteur*, of Paris, and two dozen other periodicals of less value. For some reason we have somewhat neglected our English friends, and have only a few years of the *British Bee Journal*, with stray copies of several other publications; and we still neglect to mention all the Canadian bee-publications, and the Spanish and Chilian "Apicultores."

Yours in the hope of being with you as a firm, if not in person, in another 25 years.

Hamilton, Ill., Dec. 21. CHAS. DADANT & SON.

In one sense of the word I have not been a subscriber for 25 years or more. In the winter of 1880 or '81 I was working for a bee-keeper. There is where I first saw GLEANINGS. Now, how could I have been a subscriber for 25 years or more, when I never saw it till it was seven or eight years old? At that time I knew nothing of bees, nor did I expect to ever work with them, yet I loved to read Our Homes, and about Merrybanks and his Neighbor, etc. In 1882 I sent my name to Medina, and it is there yet (and I expect it to stay as long as I and the Home Papers last). Don't throw this away yet, brother, but read on and hear of my claim as a member of that roll. Not being satisfied with what I had of GLEANINGS after reading it for a year or two I commenced hunting for back numbers, and with the help of GLEANINGS I got them all, commencing with a book of eight pages, or 100 pages the first year, 1873, and closing this year with 950, giving me 26 volumes of nearly 20,000 pages of reading-matter. Now, what I want to know is, after reading them all, paying for them all, must I stand back, or am I a member of that Roll of Honor?

Orion, Wis., Dec. 22. F. L. SNYDER.

To be sure, you are a member of the Roll of Honor, friend Snyder. It makes very little difference whether you subscribed in the outset or thought enough of our journal to send for the back numbers. In fact, it shows more regard for a journal to go away back and hunt up every number that was ever printed, as you did, than to take it right along from the beginning. And there is one thing, friend S., that you did not mention in the above. Through these same Home Papers you were led to Christ Jesus, and have probably, since that time, carried the gospel of glad tidings to many another hungry soul. Well do I remember that pleasant visit at your home on the banks of the beautiful Wisconsin River.

Continued in our next.

Digitized by Google

Thou hast loved righteousness, and hated iniquity. —HEB. 1:9.

THE NATIONAL ANTI-SALOON LEAGUE CONVENTION HELD IN CLEVELAND, DECEMBER 6, 7, 8.

This meeting had delegates and representatives from every State in the Union, on the very first day. At the head of the program I see a motto that sums up briefly the sentiment of this organization:

Let us emphasize points on which we agree, and avoid subjects as to which we differ.

I was on hand some time before the meeting opened, and was captivated at the outset by the song service conducted by L. L. Pickett, of Wilmore, Ky. Friend Pickett is one of the geniuses of the age. Before he had opened his mouth I felt sure, from looking at his face, that the man had "vim" of some sort. He commenced by asking some of the singers in the audience to come up and stand beside him and help. I said to myself, "Old chap, you have put your foot in it this time. You will not get a single person to proclaim himself a singer by coming up there in front." But friend Pickett was sharper (?) than I was. He evidently did not expect the singers to come up and help on the first invitation; but he repeated his invitation in different ways, and, in fact, made an exhortation, and they did come up and sing, and he made the audience sing too. He seemed to take it for granted that they would not send away down to Kentucky for a man to conduct the singing unless he *could* conduct it. And he *did* conduct it too. He said he wanted everybody to sing, whether he could sing or not; and if all could not sing, he asked them to read the words over and think what they meant. I began to sing, and sang myself happy long before the meeting adjourned. Mr. Pickett is not only a singer, but he is a *genius*. Somebody at my elbow suggested that his zeal sometimes led him to overstep the established rules of harmony; but, dear me! who cares for "rules of harmony" when souls are dying from the lack of the gospel of Jesus Christ? Friend Pickett is not only an exhorter on temperance, but he is a natural born evangelist and Christian worker. As soon as we had a recess I stepped up and told him I wanted to congratulate him on the rare and precious gift God had given him. And then I met one of my "happy surprises." He said something like this: "Why, bless your heart, friend Root, I used to be a bee-keeper, and I took GLEANINGS. My boys take care of the bees now, but I read your Home Papers just as regularly as the journals come." When GLEANINGS first started, or for several years after it started, I used to set the names in type, and stamp the wrappers, and I learned to know every name, address and all; and that word "Pickett" used to strike me every time I went over the list.

Now, I can not tell you *all* about the grand talks we had on temperance. Rev. Louis A. Banks, of Cleveland, made the opening address; and when he told us that our temperance work was not confined to Ohio, nor even to the United States, but that it was to be carried on into Cuba, Porto Rico, the Philippines, Alaska, and finally over the whole wide earth, then we began to be impressed with the importance of this *national* organization. Gen. Shafter has already declared that no American saloon shall be opened in Santiago; and one cargo of beer has been sent away because he would not permit it to be landed on the coast. Now, then, if the United States of America and the rest of the world can not stand back of Shafter, and help him to carry it through, we ought to be ashamed of ourselves. It would seem from Dr. Banks' talk that the army officers, and, in fact, almost everybody else except the *beer-brewers*, are loud in demanding that the canteen system in the army should be abolished, and that at once. What is the reason, do you suppose, it still hangs on when every good man and woman is opposed to it? Just because the rum power has got us *all* by the *throat*. Dr. Banks did not say that in just so many words, but *I* say it. It was either the doctor or the speaker who followed that gave us a little history of New England. He said that, in former times, the great merchants of the city of Boston used to look after the enforcement of law, and see that the police, mayor, and other officers did their duty. Later on, the *manufacturers* of the great cities in the East took a hand with the merchants, and kept down gamblers, burglars, and highwaymen, and held up law. Said the speaker in substance: "Good friends, who is it *now* that looks after the enforcement of law in that good old city of Boston, the hub of the universe, as its friends are wont to call it? Why, it is the beer-brewers and whiskey-men who have their clutches so firmly riveted to every department of law and order that they pretty much run the whole thing. Now, do not think that I am making a tirade against *Boston*, and singling it out as the worst city of the United States. What is true of Boston is pretty nearly true of every other large city in our country. And it is not the large *cities* alone that are suffering from this blighting curse in municipal management. And finally, dear brothers and sisters, is it not true that your own little town or village is fast being managed in such a way that no law can be enforced where it strikes the pockets of brewers and liquor dealers?"

As this last shot went home to my heart it almost sent a chill through my veins to be obliged to confess that here in our little village of Medina, a place of only about 2500 inhabitants, the thing he pictures is getting to be veritably true. We have been making a raid on the blind saloons here in our town, as I have told you; but just at present it looks to me as if a strange kind of blight had struck not only the witnesses called up, but every officer of our town, and almost every other town, when a case comes up involving the liquor-traffic. The witness who is bright and clear

Digitized by Google

until he gets on the stand suddenly becomes stupid and dumb. He does not *know* any thing, and does not *remember* any thing. The officers of the law, in some strange and inexplicable way, declare the evidence is not sufficient, or that there was a flaw in the law or town ordinance. If it is before a jury, the jurymen, who are bright and clear, honest and straight, in handling every crime *except* the illegal sales of liquors, suddenly become half-hearted or out of sympathy with the temperance folks and temperance works. Now, may God forbid that this should be the case in *your* town, my good friend. I know we have men who stand up unswervingly for the enforcement of temperance laws. We have them at our Anti-saloon League meetings; but a great part of them are ministers of the gospel—men who have not any property to be destroyed; but these faithful servants of a righteous God have several times lost their *lives* because they waged an uncompromising war against this evil. At the Stillman Hotel, where we stopped, we were offered a reduction providing two of us would occupy the same room. My room-mate was from Vermont. Before we retired I found that his dwelling, barns, and stables had all been burned because he pushed ahead in prosecuting the saloon-keepers. His friends told him his property *would* be destroyed, but he said it would have to go—that is, if the conditions under which he kept it were that he should stop meddling with the whisky-dealers. A good many persons had suffered in a like manner; but, may God be praised, within the last few months, in a good many towns in Ohio at least, it is getting to be the *fashion* to fine and imprison saloon-keepers who violate law.

The response to Dr. Banks' address of welcome was made by Rev. E. S. Chapman, of the Northern California Anti-saloon League, Oakland, Cal. When Dr. Banks spoke it seemed to me as if there could not be another address equal to it during the whole session; but Dr. Chapman was not a whit behind; and I had another of my "happy surprises" when Rev. W. F. Crafts, Ph. D., gave us his address entitled, "The Saloon in the New Century." No wonder we had a startling array of talent, energy, and enthusiasm for righteousness, for we had about the best men that could be picked from each State of the Union. The social interchange of thought during recess, at mealtime, at the tables of the Stillman House, and other places, was a very valuable and important feature of the whole gathering. If any one of you, dear friends, have lost heart and courage in this terrible combat, let me advise you to attend the meetings of the Anti-saloon League. Almost every town now, little and big, is having a law-and-order-enforcement branch of the League. In this way a single person is not called upon to stand before the enemy alone as a target for their spite. It is an organization of good citizens who are in favor of law enforcement. Let me give you a few illustrations of what is being done. Of course, we have to depend a good deal upon detectives; but the brewers too get hold of the detectives. In one little town in Ohio a Cleveland detective was employed to get evidence. He got it very easily. One of the saloon-keepers found out what was in the wind, approached the detective, and offered to pay him *more* money than the Anti-saloon League could pay. But our League was too sharp for even this game. They shadowed the detective with a good man, and arrested him in the act of receiving $250. He was to receive this money for being off where he could not be found when he was wanted as a witness. That detective is now in the Ohio Penitentiary, where he can be found every time he is wanted, until he pays the penalty of his crime. I did not learn what they are doing with the saloon-keeper.

Here is another point: In many of the little towns the brewers own the saloon, and they protect the saloon-keeper as a matter of course. But in one place we worried them so badly that they told the saloon-keepers of that town to pack up their furniture and liquors, and ship them back to the Cleveland house. Said house declared they could not stand the "racket." They said they would have to find another town, where the people were not so strongly in favor of temperance, or wait till the thing had blown over a little and the temperance craze had quieted down.

Now, then, ye people of this land of liberty, as we are wont to call it, what shall the future be? Is the rum power to run things according to its ideas of law and order, or is it to be in the hands of the good people—those who love righteousness and hate iniquity?

A WHEELRIDE THROUGH SOUTH DAKOTA.

After the bee-keepers' convention at Omaha had adjourned I made a trip to South Dakota to look after half a square mile of land located within about a mile of the town of Mitchell, Davidson Co. Besides looking after the land I wanted to look after a very good friend of mine, Mr. C. M. Peck, in the employ of the American Sunday-school Union. Friend Peck has been for a good many years locating Sunday-schools, and exhorting and reviving schools already started through that portion of the State. Let me go back a little.

Three or four years ago Bro. Peck had a project for holding meetings in a tent as an auxilliary to his Sunday-school work throughout that locality. He thought that, after he had the tent, he could raise, by way of collections and subscriptions, sufficient to pay for it. But somebody would have to advance the purchase money. Now, do not think I wish to boast when I tell you it was my *privilege* to furnish the funds. From time to time I had heard good reports of the tent work, and these reports have been accompanied by remittances so that the money I advanced had been all paid back some little time before my

Digitized by Google

visit. Friend Peck met me at the train, and announced that there was to be a meeting out on the great prairies, a little over thirty miles away. Now, friend Peck is a wheel-rider, and I had my chainless Columbia with me, and so I proposed that we should by all means go on our wheels. But he thought we had better take the train. He feared that thirty miles would be too much for me in one afternoon, especially if we wanted to be in good trim for the meeting in the tent that Saturday evening.

"Why, look here, Bro. Peck. I never ride on a train under any circumstances when there is a possibility of making the same trip by wheel. In fact, I have often ridden the wheel when I had a ticket in my pocket to go on the train."

So, off we started. Now, I have a good many times, as you may remember, told you about the "finest roads for wheeling in the world;" but the black prairie soil, when it is tramped down hard by travel, and swept cleaner than any housewife could sweep a floor, by the tremendous Dakota winds, is certainly equal to any thing on the face of the earth. In many places it is scarcely a bit behind an asphalt pavement. Providentially the wind favored us; and it blew as only Dakota winds *can* blow. Oh what fun we had that afternoon! The thirty miles of road was almost a level stretch, or at most only slightly undulating; and all the way was through large farms, some of them a mile square, sometimes a square mile of wheatfields interspersed with grass and pasture. Before sundown we could see the tent, a little white speck away off in the distance.

The Rev. R. N. Kratz was to assist in the services that evening, and we caught sight of him sitting in a camp-chair at the door of the tent, reading. My two friends feared the cold lunch they oftentimes put up with in their tent work would not be just the thing for me. But I assured them, first by words and afterward by practical demonstration after riding thirty miles in one afternoon, that almost any kind of wholesome food, providing there was plenty of it, would answer tiptop. I remember vividly that we had a cold chicken. And then there were some loaves of brown bread made of Dakota flour. Now, I am very partial to bread that is well baked, and old enough to be tolerably dry, and this filled the bill to a dot. I am very fond of the right kind of bread and butter; in fact it is, a good deal of the time, almost the only thing I eat with my beefsteak. But this bread was certainly the most palatable and satisfying of any I had ever before found, east, west, south, or north; and, to tell the truth, every bit of bread I saw while in Dakota seemed to be quite a little superior to any thing in that line I ever got hold of before. First I give the credit to the wheat grown on those dry prairies, and then to the good housewives who know how to make bread, and, in fact, to do almost any thing else in the way of getting up an appet zing meal. I was somewhat acquainted with Bro. Kratz already. I first met him and learned to love him in our Medina County jail. One Sunday when I was pleading with a pretty good-sized class of prisoners (that was years ago, before the saloons of Medina were banished) Bro. Kratz was brought in and introduced to me. We were both at that time engaged a good deal in prison work, and therefore when he reached Medina, and somebody told him I had a class in the jail, he obtained permission to come in. I do not know how much good his exhortations did the *prisoners* that day. It seems to me his kind and earnest words ought to have saved at least one soul if not more. But they warmed my heart toward him in a way I shall never forget. I do not know but he will scold me for what I am going to tell you. As I got it from other parties I may not have gotten it straight; but I took pains to find out, and I know I am pretty nearly right when I tell you that he dropped a government position, relinquishing quite a good-sized salary, in order that he might take up with this evangelistic work over the Dakota prairies, even though the latter did not afford him more than a half — perhaps not even a *third* — as much as his former office. He did it because God's voice *called* him to the work. Now, Bro. Kratz is a Methodist while Bro. Peck is a Congregationalist; and yet these two friends labored together in a way that brought to my mind again and again the story of David and Jonathan in holy writ.

Toward dusk loads of people began to come in from away out across the prairies; and, oh what a nice meeting we had!

The next morning I wanted to see the sun rise out on the great prairie. In fact, my two friends told me that sometimes there were beautiful mirages to be seen. But the mirages did not get along that morning, but something *else* came along. Bro. Kratz put his head out of the sleeping-tent and happened to get a glimpse of my chainless wheel, and asked me some questions about it. Now, we were all away out in the country. The houses were nearly a mile apart, and there was not anybody up, anyway. I suggested to Bro. Kratz that he should get out on the smooth road and just run it a few rods to see how it would go. Well, he started off; and as it seemed easier to go ahead than to stop, he kept on; and the next thing I knew the minister in his shirt-sleeves and slippers, and his white hair flying, was getting out of sight in the distance, on the beautiful Dakota roads, on that beautiful Sunday morning. By this time Bro. Peck looked out, and we had a big laugh to think of the devoted pastor riding a wheel just for sport on Sunday morning. Bro. Peck suggested that Bro. K. was going around the square so as to come in from the other direction. I wonder if some of my good friends will not think I am a little loose in my ideas in regard to keeping the Sabbath. Permit me to say, briefly, that, were it not for the precedent it might be setting, I would do a great many things that I now refrain from doing I once asked a noted divine a question something like this: "Bro. Ryder, if you were on an island, as was Robinson Crusoe, and you and your wife and children were the only inhabitants, if I understand you correctly

Digitized by Google

you would not hesitate to take your horse and buggy and ride around the island Sunday evening."

"You are right, Mr. Root. The greatest reason, if not the only one, why I do not go out riding Sunday evening is because of the example it would set to those who, when they once get started in Sunday riding, would have no conscience or scruple to control their actions."

About nine o'clock loads of people might be seen coming from every point of the compass. All came — old and young. I do not know that I ever attended a Sunday-school or meeting where there was so much diversion in the way of childish prattle from those who were not old enough to know any better; but the childish prattle just made *me* feel happy, and I am sure my two friends felt as I did about it. The meeting kept increasing in size all day long, and we had four different services; and after the evening meeting had got started the people came crowding in to such an extent that we tied up the side curtains of the tent, and there was a great circle spread out on the grass all around in every direction from the speaker. The services were all short, sometimes all three of us taking part in one meeting. Some arose for prayers at the close of the meeting; but aside from this I know that good was done to many more, by the animated faces and close attention given to every word that was uttered.

In the afternoon we were invited a couple of miles away to take dinner at a farmhouse. Let me say, by the way, that I made a similar visit in the same place seven years ago last November, and I felt greatly pleased to see so many prosperous farms and new comfortable houses that have been built in the interval since I was there. They do not get large crops of wheat on those great Dakota farms—that is, not great crops per acre; but when the people become acquainted with the climate, and make due calculation for the possible dry summers, they manage to get along very well.

The next morning we were up bright and early, and I was greatly interested in seeing Bro. Peck pack his tent, and load it all on to a one-horse wagon — not only the tent alone, but a side tent for sleeping and cooking, and seats enough to accommodate about a hundred people. The whole outfit, wagon included, under Bro. Peck's careful planning, cost only about $150. Such a tent answers every purpose for outdoor meetings much better out on these dry prairies than it would in ordinary localities. In fact, one can sit or sleep on the ground out here, without any trouble.

After we were all loaded up two of us were to ride wheels, and the third was to drive the horse. In order to enjoy the trip we changed about. First one would drive, and then another. And, by the way, very providentially, the wind changed during the night, and blew just the other way. In one of the finest stretches of road on our way home, Bro. Peck and I timed ourselves for speed. If I remember correctly I rode a mile in a fraction less than four minutes. Bro. Peck got it down to three minutes and a half, and said he thought he could make it three. But neither of us felt like exerting ourselves unduly just to tell how fast we could ride.

The artesian wells of South Dakota that I had so much to say about in November and December, 1891, are still pouring forth their liquid treasures. But I was greatly disappointed to find that, at least in the vicinity of Mitchell, but little use is made of the water for irrigation. Several had an idea that the minerals that this artesian water contains are rather detrimental to at least many crops. There were, however, different opinions in regard to the matter. We passed many artesian wells, some of them throwing large streams of water; but it seemed to be used mainly for watering stock. In many places it just runs off into a quagmire instead of being a benefit to any one.

The next day we made a trip off about twenty miles to the north. We had the usual powerful wind that blows almost every day in those regions. If it is behind you, all right; but if it is coming in your face, travel on a wheel — that is, with most wheels — would be practically out of the question. There were three of us with two wheels and the horse and buggy. We decided we could get home that afternoon by changing about; and with my chainless Columbia I found I could make some headway, even when the wind blew a regular gale; and then when it slacked up I could shoot ahead at a pretty fair speed. In this way I made ten miles in one afternoon without becoming very much fatigued. On the way I caught up with a wheelman whom I afterward found to be the mayor of the city of Huron. Just for fun I told him to try my wheel and I would try his. He had one of the best up-to-date chain wheels. I could not work his against the wind at all, and had to give it up; but he got along very nicely on mine.

THE WEATHER ALMANACS, LONG-WEATHER PREDICTIONS, ETC.

My attention has just been called to an article published last January in the *Monthly Weather Review*, by the U. S. Weather Bureau, Washington, D C. From this article I make the following extract:

> The least rational almanacs are those that pretend that the weather is controlled by planetary combinations and stellar influences, therefore such predictions are properly said to be based upon astrology.

Let me copy still further from the same article:

> The least scientific system of preparing the almanac predictions was explained to the editor many years ago by a gentleman whose almanac made the greatest pretensions to high scientific accuracy. This gentleman stated that on certain days he felt endowed with a certain ability or inspiration. These were his weather-making days, on which he sat down, and, with the most absolute confidence in the accuracy of his work, wrote up the weather for the coming year, continuing at the work for a considerable time until the inspiration seemed to leave him, whereupon he necessarily stopped, and delayed resuming the work until again filled with the spirit of divination.
>
> Doubtless some almanac-makers adopt a combination of the preceding methods; but, in general, these seem to be the principles most widely recognized in

Digitized by Google

the long-range predictions of the almanacs, except only that in all cases the authors make free use of a system of general and rather indefinite terms that will apply just as well to a thunderstorm, a hurricane, or an earthquake. The warning, "Look out for something very unusual about this time," is, of course, not a meteorological prediction, and not nearly as definite as the railroad signboard, "Look out for the engine when the bell rings."

Our readers may remember that I declared with some vehemence that a knowledge of astronomy does not warrant scientific men or any other class in declaring that they can predict a whole year ahead what the weather is going to be. Now, the above, from the Weather Bureau, throws a little light on the matter. Even though I can not understand how maps showing how the motions of the planets should help one in making long-range weather predictions, I *can* see some sense and consistency in claiming that God gives "inspiration" to certain persons; but establishing the *claim* of this inspiration would be quite another matter. "By their fruits ye shall know them." If a man who claims to be inspired keeps using the stereotyped phrase, "Look out for something very unusual," etc., I should demand that he tell beforehand what the "unusual" thing is to be. If his followers declared, after it was past, that it meant dry weather at one time, floods at another, a blizzard, or unusual *heat* for the season of the year, etc., I should reject the "inspiration" theory. Wouldn't you? In regard to the question as to whether the combined science of the present age gives any encouragement to these long-range predictions, permit me to quote just two sentences from an article by Prof. Willis L. Moore, chief of the U. S. Weather Bureau, in the *Forum* for May:

At the present time I know of no scientific man who essays to make long-range weather predictions; and I would especially caution the public against the imposture of charlatans and astrologists, who simply prey upon the credulity of the people.

I believe it to be impossible for any one to-day to make a forecast, based fairly upon any principles of physics or upon any empiric rule in meteorology, for a greater period than one or two days in winter, or for more than two or three days in summer.

While we are on this subject, permit me to say that I have been reading the questions and answers in the Cleveland *Daily News and Herald* for more than a year back, and I have been both pleased and surprised to note the soundness and correctness of answers covering almost every realm of science, geography, and history. If the *Herald* has one man who can answer so well every thing that a world of people propound, he is certainly a scholar. Well, in a recent issue somebody who was curious in regard to this weather matter propounds the following questions:

1. On what are the predictions of certain almanacs based which tell what the weather is to be through the year in advance?
2. Why does not the United States Weather Bureau employ the prophets who do this work, and so get predictions a long way ahead?
3. What connection is there between the weather and the changes of the moon?

Below are the three very sensible answers:

1. Various systems, all no better than guesswork, except as they take account of the known probable duration of "dry spells," "cold waves," "heated terms," and the like, are used. The predictions rest on nothing more substantial than a sort of loose probability that the weather will change at about the stated intervals.
2. Governments aim to get as far as possible away from guessing in their scientific departments.
3. None, so far as known.

SOMETHING FURTHER IN REGARD TO THE LOSS OF MR. COWAN'S CHILDREN.

THE following is copied from a leaflet just received from Mr. Cowan.

"Death is swallowed up in Victory."
"Underneath are the Everlasting Arms."
"This is the Victory that overcometh the World, even our Faith."

IN LOVING REMEMBRANCE
OF
HELENA MARY
AND
HERBERT FRANCIS COWAN,
who were taken home in the
Wreck of the "MOHEGAN," on October 14th, 1898, on the "Manacles," near the Lizard, on the Coast of Cornwall.

Their bodies were recovered the next day, absolutely uninjured; and the beautiful, calm, holy expression on each of their faces proved that death for them was an entrance into life eternal, and the Everlasting Arms were indeed beneath and around them as they were carried and tossed by the relentless waves amongst those terrible rocks, and laid perfectly unharmed upon the shore. Their bodies were laid to rest at Budock, near Falmouth, almost in sight of the scene of the disaster, to await a joyful resurrection.

In addition to the above I take the liberty of making a brief extract from a very kind letter from friend Cowan himself in regard to this sad event:

Indeed we have much to be thankful for, as both our dear ones had devoted their lives to their Master's service; and after they had been called home the beautiful expression on their faces testified to their entrance into glory. They died as they lived; and we heard from a survivor that they had refused to go into the life-boats, as they were good swimmers, and the life-boats should take those who could not swim, and they were seen apart on the deck of the vessel, quite calm and collected, and went down with the vessel. Death must have been instantaneous.

GLEANINGS is always clear and up to date, and I can say for one that I can get all the information that is necessary out of it. Your Christmas number is something of a "hummer," and plenty of good reading for bee-men; also useful for reference to the whole year's journal, which is worth considerable to all subscribers. WM. DICKINSON.

Streator, Ill., Dec. 22.

ONE DOLLAR WELL INVESTED.

About a year ago last September I sent you $1.00 for GLEANINGS, with a promise of a queen as a premium; and now at this late day I am going to give you the results of my venture. GLEANINGS came all right, and so did the queen. At that time I had no good place to put her majesty excepting a rather small queenless colony of very doubtful ability to winter. But I put her in, and kind o' hoped she would go through, because she came from the same State so many of our good presidents did. In fact, I named her Mrs. McKinley. Last spring when warm weather came on, she began to spread out and fill the hive up with brood; and out of 15 colonies she outdid them all. I took over $10 00 worth of honey from her hive, and they are packed away now with a far better prospect for another year than they had last. That was the most profitable dollar I ever squandered in my life.

GLEANINGS is cheap enough without any premium; but you know we bee men always take any thing we can get. SANFORD HARTMAN.

North Platte, Neb., Nov. 6.

Digitized by Google

Special Notices by A. I. Root.

GARDEN SEEDS, ETC., FOR 1899.

Our list of seeds and prices will probably appear in our next issue. For many years I have been raising our own seed beans; but until the present year the price has been so low that it did not really pay, and I suppose others must have felt just as I did; but now Wardwell's kidney wax beans, and, in fact, almost all kinds of wax beans or green snap beans, are worth from $5.00 to $8 00 a bushel. What a nice little "spec" it would have been had somebody raised a great lot of beans for seed for 1898! One Florida friend sent us $49 for kidney wax beans, stipulating they must be "crop of 1898" So far I have not been able to find them, even at any price. Every seed. man I have corresponded with has been sold out. I found several lots of the crop of 1896 and 1897, and these were recommended, saying they would germinate fairly. But our Florida friends, knowing how much depends on the quality of the seed, are afraid to try beans more than a year old.

Until further notice, Kumerle bush lima beans will be: Quart, 25c; ½ peck, 85c; peck, $1.50.

Burpee's bush lima: Quart, 35c; ½ peck, $1.10; peck, $2 00; bushel, $7.00.

Davis wax or Wardwell's kidney wax: Quart, 20c; peck, $1.50; bushel, $5 00.

Pole lima beans, extra early lima and King of the Garden lima will be: Quart, 25c; peck, $1.50.

All kinds of sweet corn will be: Quart, 15c; peck, 75c; bushel, $2 50.

On onion seeds, the best price we can quote at present is, Yellow Globe Danvers, Large Red Wethersfield, and Extra Early Red, each, $1.00 per lb.; Prizetaker, $1.75 per lb. All other seeds will be as in our catalog.

Potatoes are lower, as you see by the following table:

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White or Red Triumph...	$ 15	$ 40	$ 25	$ 40	$ 75	$ 1 25	$ 3 00
Bovee	15	40	25	40	75	1 25	3 00
E Thoro'bred, Maule's..	15	40	20	35	50	1 00	2 50
Early Ohio	15	40	25	40	75	1 25	3 00
Early Prize	15	35	20	25	40	75	2 00
Burpee's Extra Early...	15	40	25	40	75	1 25	3 00
Freeman	15	40	20	35	50	1 00	2 50
New Queen	15	40	20	35	50	1 00	2 50
Monroe Seedling	15	35	20	25	40	75	2 00
Rural New-Yorker No. 2..	15	35	20	25	40	75	2 00
Mill's Prize	15	35	20	25	40	75	2 00
Carman No. 1	15	40	20	35	50	1 00	2 50
Carman No. 3	15	40	20	35	50	1 00	2 50
State of Maine	15	35	20	25	40	75	2 00
Manum's Enormous	20	75	30	50	85	1 50	3 50
New Craig	15	40	25	40	75	1 25	3 00

OUR ROLL OF HONOR.

Since the list of veterans was put in type a great many more letters have come in. In fact, it begins to look as though a great part of those who started with GLEANINGS in its first year had kept right on. I am afraid Ernest will scold when he sees how much space I am planning to use, for letters from the veterans; and I have been trying to boil them down somewhat; but each reminder of olden times sounds so good (to me at least) that it almost seems wicked to draw my pencil through a single sentence. May I ask the younger ones to be patient with us a little while? for a good many of us are writing pretty nearly our last letters, and then we will soon give you the whole field These communications will run through our next issue, and may be two or three issues more, if they should keep showing up as they have done for the past few days. May God bless you all, friends. Your names are all familiar, and it has been one of my happy surprises to see that so many of you are *still* taking GLEANINGS.

In addition to GLEANINGS free to the veterans, we are going to send by mail a glass paper-weight explaining the mathematics of the honey-comb. This was one of my hobbies about twenty years ago, and I spent a good deal of time in making this geometrical figure out of beeswax, sugar candy, etc. But those of flint glass are ever so much the nicest. You can put one on the center-table as a little reminder of your old friend Novice, and of the high regard in which he holds all of those who started with him and have stood by him for a quarter of a century.

CONVENTION NOTICES.

The California State Bee keepers' Association will hold its annual convention at the Chamber of Commerce, Los Angeles, on the 11th and 12th of January, 1899. J. F. McINTYRE, Sec.

Wants and Exchange.

WANTED.—To exchange a Mann green-bone cutter, No. 6, for honey, bee-fixtures, or offers.
A. W. CARSON, Joplin, Mo.

WANTED.—To do gunsmith work in exchange for bee-supplies or cash. My specialty is making new muzzle-loading rifles, and restocking all kinds of guns. Broken parts can be sent cheaply by mail. Correspondence answered. S. B. POST,
R. D. No. 2, Washington, Pa.

WANTED.—No. 1 white comb honey in 4x5 inch sections; also to furnish my hives and 4x5 sections for a share of the next honey crop, to parties within 100 miles of this city. Address *at once*
F. DANZENBAKER, Washington, D. C.

WANTED.—Young man who does not use liquors or tobacco to work the coming season on farm where honey, fruits, and general farm crops are raised. Give references. C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.
HENRY ALLEY, Wenham, Mass.

WANTED.—Bees on shares or position in apiary. Lifetime of experience. Reference given and required. F. M. MUNSON,
801 Church St., Elmira, N. Y.

WANTED.—To exchange supplies for bees on Dadant's frames. I. J. STRINGHAM,
105 Park Place, New York.

WANTED.—To exchange a Novice honey-extractor and a 200-egg-size Excelsior incubator, both in good running order, for beeswax or offers; also a few S. C. White Leghorn cockrels.
Pine Grove Bee & Poultry Farm, Richford, N. Y.

WANTED.—To exchange two small printing presses and printing outfit for bloodhounds, ferrets, fancy poultry, bicycles, or something I can use.
JAMES M. DENHAM, Valley, Ky.

WANTED.—To know what you have to exchange for new varieties of raspberry-plants; also Campbell and Alice grapevines.
MRS. LIZZIE McQUEEN, Baltic, Ohio.

WANTED.—To sell or exchange one female bloodhound, 4 years' old, fully trained, with good record. Also one dog pup 5 months old. Address at once
R. GOLLING, Lenoir City, Loudon Co., Tenn

SPRAYING
with our new patent
Kerosene Sprayers
is simple indeed. Kerosene emulsion made while pumping. 12 varieties sprayers, Bordeaux and Vermorel Nozzles, the "World's Best."
THE DEMING CO., SALEM, O.
Western Agents, Hennion & Hubbell. Chicago. Catalogue and formulas free.
In writing, mention Gleanings.

FREE! FREE!
A beautiful present with every order. Cheapest place in Michigan to buy your SUPPLIES. Send for a price list explaining.
W. D. SOPER, Box 565, Jackson, Mich.

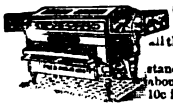
PINE CONES for decorative purposes. Very handsome long, tapering, bright-colored—not like the flat brown ones of the North. Let me send you a dozen samples for 15c, or 2 dozen for 25. Mrs. S. A. Dyke, Waldo, W. Va.

Digitized by Google

HURRY-UP BROILERS— the kind that grow rapidly and mature early are the ones which "top the market." The making of such birds **depends upon the feed, likewise the digestion. Feed Green Cut Bone,** the great flesh forming food for growth and **Mann's Granite Crystal Grit** for the digestion and the problem is solved.

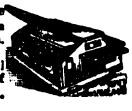
MANN'S NEW BONE CUTTERS "beat all" for making poultry food out of bone. Meat and gristle can't stop or choke them. **They cut fast, fine and run easy.** 19 sizes. We also make **Clover Cutters and Feed Trays. Cash or on installments.** Send for **FREE** illustrated catalogue. **F. W. MANN CO., Box 37, Milford, Mass.**

In writing, advertisers mention Gleanings.



"THEY CAN'T BE BEAT." At any rate they have never suffered defeat in all the numerous tests, trials and competitions with the many machines of the same class.

RELIABLE INCUBATORS AND BROODERS stand for the highest value known to the incubator art. It takes a book of 228 pages to tell all about them and our large pure-bred poultry plant, poultry supplies, etc. Sent on receipt of 10c in stamps. **RELIABLE INCUBATOR and BROODER Co. Box B 49 Quincy, Ill.**



In writing advertisers, please mention Gleanings.

THEY HATCH MILLIONS

of Chickens, Ducks, Turkeys and other fowls in every state and territory in the Union and in many foreign countries—

THE PRAIRIE STATE INCUBATORS.

Used by the largest poultry breeders, duck and broiler farms everywhere. Have taken over **900 first prizes** in all kinds of competition. The easiest to handle, cheapest to operate, surest in results and most handsome and durable in construction. 168 p. catalog and supplement **FREE.** **Prairie State Incubator Co., Homer City, Pa.**

In writing, mention Gleanings.

HOW TO START in the POULTRY BUSINESS and how to make it a complete success is the theme of our POULTRY GUIDE. Tells all about poultry houses, how to build, cost, &c., and how to **breed, feed** and **market fowls.** Treats also of the famous **CYPHERS INCUBATOR** which is **delivered freight paid to every purchaser.** This machine requires absolutely no artifical moisture. **Send 10 cents** and get the book. Circulars FREE.

THE CYPHERS INCUBATOR CO. Box 74 WAYLAND, N.Y.

In writing, mention Gleanings.

SUCCESSFUL INCUBATORS.

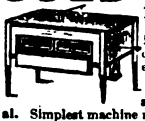
Hot Air or Hot Water.

A standard machine for hatching strong, healthy chicks—self-regulating, patent egg turning trays, drying room under trays, non-explosive lamp—these are a few of its good points. Our 148 p catalogue gives prices and description, also pointers on poultry buildings, etc., mailed for 6c stamp. Write for it now.

DES MOINES INCUBATOR CO., Box 503 Des Moines, Iowa.

In writing, mention Gleanings.

SOLD ON TRIAL!



Buy no incubator and pay for it before giving it a trial.

Many people have lost faith in incubators because they bought one that was never intended to hatch chickens—made merely to sell.

The Von Culin Incubators are sold on trial subject to your approval. Simplest machine made. A child can operate it. **The biggest catalogue and "poultry pointers" book** published, sent for **5c.** Plans for Brooders, Poultry Houses, etc., sent on receipt of **25c.**

Von Culin Incubator Co. 8 Adams St. Delaware City, Del.

In writing, mention GLEANINGS

Circulars free. Send 6c. for Illus. Catalog.

HATCH CHICKENS BY STEAM—with the simple, perfect, self-regulating **EXCELSIOR INCUBATOR**

Thousands in successful operation. Lowest priced 1st-class hatcher made.

GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.

A WASTE OF MONEY is never desirable or justifiable. It is worse than waste to put high priced eggs in a poor, imperfect incubator.

The MASCOTTE INCUBATOR not only prevents such waste, but turns failure into success. Regulates perfectly as to heat, and ventilation. Guaranteed. Send at once for **FREE** catalogue.

Mascotte Incubator & Lumber Co., Box 18, Bedford, Ohio.

In writing, mention Gleanings.

BARGAINS.

We never raised as many or as good chicks as we did the past season. Our buildings are crowded; we want to reduce stock quick, and to do it will CUT THE PRICE so it will pay you big to buy NOW. Will sell you Barred and White Pl. Rocks, White Wyandottes, Lt. Brahmas, Langshans, and Pekin Ducks. Pullets and hens, $1, $1.50, and $2: Cockrels, good breeders, $2 to $3 Trios, $5 to $6; Ducks, $1 to $1.50 each, $3 to $4 per trio. Early-hatched, healthy, vigorous birds; guaranteed to please. Above prices for a short time only. Send for 80-page free catalog of

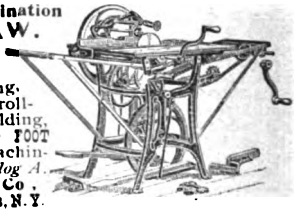
"Everything for the Poultry Yard."

We are the oldest-established poultry-farm and supply-house in the West.

Geo. J. Nissly, Saline, Mich.

In writing advertisers, mention GLEANINGS.

Union Combination SAW.



For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line FOOT and HAND POWER machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co., 44 Water St. Seneca Falls, N. Y.

Low-down Broad-tire Farm Trucks

originated with us, and we still sell direct to farmers three-fourths of all that are used. We build ten styles of farm wagons, extra wheels for old wagons, and milk-peddlers' wagons. Steel-wheel trucks, $18.

Farmers Handy Wagon Co., Saginaw, Mich.

In writing, mention Gleanings.

Digitized by Google

Vol. XXVII. JANUARY 15, 1899. No. 2.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. ROOT CO.
MEDINA, OHIO.

MURRAY-HEISS CLEVELAND O

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Digitized by Google

Our Great Combination Offers.

Gleanings and Rural New-Yorker for only $1.25.

By special arrangement with the publishers of the RURAL we are able to make this offer for a limited time. No words of ours are necessary to explain the worth of this great agricultural paper. Send in your order at once.

The Ohio Farmer (or Michigan Farmer) and Gleanings in Bee Culture for $1.10.

The OHIO FARMER stands in the very front rank of farm papers. It is edited by practical men, and among our exchanges in the agricultural line it is one of the few really good farm papers that we read.

Gleanings and Farm Journal for $1.00.

The **FARM JOURNAL**, of Philadelphia, a monthly agricultural journal of 16 pgs., sent **ONE YEAR FREE** for one subscription to **GLEANINGS** with $1.00, paid in advance, either new or renewal.

The Farm Journal is now in its 20th volume, and takes the lead among all the *low-priced* agricultural journals of this country and of the world. It gives no chromos, puffs no swindles, inserts no humbug advertisements, lets other folks praise it, and makes good to subscribers any loss by advertisers who prove to be swindlers. The editor was born on a farm and reared at the plow-handles, and the contributors are practical men and women.

The regular price of this excellent journal is 50 cents a year, and it is well worth it; but by special contract with the **FARM JOURNAL** we are enabled to make the above very liberal offers.

Gleanings in Bee Culture, American Agriculturist (weekly), Farmers' Almanac for 1899,

ALL ONE YEAR ONLY $1.00.

By special arrangement with the publishers, we are enabled to offer the American Agriculturist in combination with Gleanings at the unparalleled low rate of $1.00 for both papers one year including the Farmers' Almanac. The American Agriculturist is published in three editions. The New England Homestead, the American Agriculturist, and the Orange Judd Farmer. Each contains matter relating to its own locality, as well as the latest and most accurate market reports for the country in general. It has departments relating to all branches of farming, articles written by the most practical and successful farmers, supplemented with illustrations by able artists. Short stories, fashions, fancy work, cooking, young folks' page, etc., combine to make a magazine of as much value as most of the special family papers.

Taken separately these two papers and almanac cost $2.50, consequently every subscriber under this offer will get

$2.50 IN VALUE FOR $1.00.

Gleanings and The Poultry Keeper for only $1.00.

THE POULTRY KEEPER is a monthly journal, edited by P. H. Jacobs, and published at Parkesburg, Pa. It has tinted covers in two colors, and is beautifully gotten up.

Either old or new subscribers may take advantage of these offers, but in the case of an old subscriber the money must be sent in before the subscription expires; or, if already in arrears, all back subscription must be paid up at the regular rates, in addition to the clubbing price for a year in advance.

The A. I. Root Co., Medina, Ohio.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

VOL. XXVII. · FEB. 1, 1899. No. 3.

STRAY STRAWS FROM DR C. C. MILLER

"QUEENSOUND" is a word proposed by L. Kreutzinger to signify that a colony is all right as to having a good laying queen.

SACKS OF BURLAP or other material are advised by Editor York in preference to boxes, for shipping beeswax. Saves freight. [Good suggestion!—ED.]

"LIVE BEES are sometimes shipped on ice, so as to keep them dormant during the journey," says a clipping sent me. Some reporters are well equipped as to imagination.

A QUESTION for discussion at a coming bee convention in Canada is, "Is it desirable to keep down swarming?" Now, how far down does that mean? down to one, or down to three swarms per colony?

J. A. STONE, the genial secretary of the Illinois Association, is optimistic in *American Bee Journal* regarding plain sections. Outside sections in super are filled sooner, ship better, because better filled out to the wood.

HOW TO GET RID of honey, Editor Hill says, is not a matter of so much concern down his way as to get a good price for it. But down our way, friend Hill, getting a good price is only part of the "how" to get rid of it.

IF THOSE WHO SAY *Apis dorsata* can not be domesticated are right in saying it can not live in this country, then its introduction can hardly do any harm. I never believed it could live in the North, but thought it might in the South.

QUOTING what Messrs. Taylor and Mackenzie have said about boiling foul-broody honey, *Le Rucher Belge* says: In presence of such contradictory affirmations which can not be verified till next season, we recommend boiling the honey during the maximum time.

D. W. HEISE and Editor Holtermann seem likely to get into a quarrel as to whether the use of beeswax instead of paraffine, in covering tumblers of jelly, as mentioned in a Straw, would create an increased demand for beeswax. Don't, brethren. The only idea in the Straw was that many a housewife could use beeswax who had no paraffine on hand.

TWO BEE JOURNALS, quoting F. G. Quirin, GLEANINGS, 845, direct that honey in glass, to be liquefied, should be set in the oven of a cook-stove. Some one will try that and have the glass burst and the honey flood the oven. Brethren, why don't you tell your readers that Mr. Quirin has the glass vessels in a shipping-case?

EDITOR YORK has gotten up a very neat little Honey Almanac, containing the honey-leaflet so well known, honey-recipes, and tables interspersed giving the correct times for a properly regulated sun and moon to rise and set, with other useful information. [Ah! I see. Bro. York has anticipated me—just gone and got up a handsome honey-leaflet. See editorial elsewhere.—ED.]

J. E. CRANE'S article, p. 42, is entirely correct, but it only shifts the question one step further back—is the black carried up from the brood-nest into the super caused by travel-stain, or what is it? [I do not believe we can tell where the black does come from—perhaps sometimes from out of the hives; but I suppose that, in the majority of cases, it is chunks of propolis.—ED.]

LATELY it has become quite the fashion to have departments in bee-journals giving items from journals in different languages. L. Joachim is doing excellent work condensing from American bee-journals in that growing French journal *Le Rucher Belge*, and M. Leger from the German; as also L. P. Pirson, in *Revue Eclectique*. W. Fitzky has a valuable department in the German *Centralblatt*, but confines himself to his own language.

BEST HIVE for beginners being asked for in *American Bee Journal*, more of the veterans agree upon 10-frame Langstroth than upon any other. [It is a fact that the call for the 10-frame is somewhat on the increase, as our orders from season to season attest. We may talk about the eight-frame being big enough; but to insist that it is large enough for all localities, all conditions, and all bee-keepers, is foolish, to say the least.—ED.]

ISN'T THAT SMOKE BUSINESS a little mixed, p. 49? C. Davenport says pure smoke is better than smoke mixed with hot air. So it is;

Digitized by Google

it's stronger. And isn't pure smoke better than smoke mixed with cold air? With the cold blast you are blowing air on the bees, together with what smoke goes along with the air for company. With the hot blast are you not sending out pure smoke? [Hot smoke, as pure smoke as it can be, is the stuff that gives me the best satisfaction.—ED.]

WHAT A WHOLESALE recanter ye editor is, when once he finds he's in the wrong! From thinking 15 minutes enough to boil foul-broody honey he has gone clear up to 3 hours, p. 49. I protest that there is no sort of proof for the necessity of boiling more than 2½ hours. [It is rather humiliating to have to turn "right about face;" but when one sees he is wrong, it is the only honest thing to do. Three hours! why, if two and a half hours is just enough—just barely enough—why not make a sure job of it by taking three hours?—ED.]

I KNEW that something stronger than water was sometimes drunk at Medina, on the sly, but I didn't suppose that the editor indulged so freely that he wouldn't straighten up in two weeks' time. But he still seems fuddled, Jan. 15, p. 41, and insists, just as he did two weeks before, that "wide frames are section-holders without top-bars," and innocently asks, "If not, what are they?" Why, bless your heart, wide frames are section-holders *with* top-bars! [Cart before the horse this time, sure. What I had in my mind, but didn't say it, was this: "Section-holders are wide frames without top-bars."—ED.]

JOHN ARMSTRONG proposes, as spacers, buckshot with nails driven through them. That would give metal spacers, but the lead would not dull the uncapping-knife. But the shot being round, there seems no advantage over staples Possibly a lead bead could be made that would be a good thing. [I think we make much more ado about the possibility of the uncapping-knife being dulled on a metallic spacer than actual experience with such spacers seems to warrant. I talked with Mr. Frank Boomhower, who uses staple spacers. I do not remember exactly his remark, but it was to the effect that he had no trouble along that line, and that the talk in the bee-journals was based on theory and not actual experience.—ED.]

WHAT IS THERE IN US that makes us laugh at the calamities of others? When I read on p. 60 the multiplied afflictions of Bro. A. I. Root, with crick in back, rubbers off, shoes untied, and nose unwiped, I just lay on the lounge and laughed till I shook all over. [Been there yourself, eh, doctor? But, say; I wish you could do something to make him stay indoors till he gets well. He no sooner feels a *little* better than out he goes again, trapsing around in the wet; gets chilly, goes in, hovers over the steam-pipes, *with his rubbers, overcoat, and hat on*. After he gets well cooked up, and hot, he goes out again; then at night he wonders why he has the neuralgia, the grip, and a lot of other aches and pains. I have been trying to give him some good fatherly (?) advice. Somehow he thinks he is older than I, and ought to know better. He has been having a regular siege of grip with all its attendant pains, during the past few days; and now, contrary to my explicit orders, he is outdoors again. Say, doctor, do you know of any way of mesmerizing him into submission? I wish you would do it if you can.—ED.]

MORE HONEY-DEW was stored last year all over the world than ever before, according to reports. Perhaps honey-dew was no more plentiful than usual, but the scarcity of floral nectar made the bees store what in other years they neglect. [Perhaps; but when there is honey in plenty from the fields, I have noticed that the sidewalks under the trees are not spotted by the spray of the honey-dew as they are during those times when honey is scarce. Is it not possible that Nature has so provided that, when nectar is not secreted in the usual way, because of certain conditions of atmosphere, those same conditions are favorable to the secretion of another form of saccharine matter, or, rather, to the growth of certain insects? You know there is a wonderful harmony in nature. The all-wise Creator has in many ways made one hand to help the other. ED.]

THE OLD UNION has 152 members and $171. The new Union has 465 members and $175. Pity they didn't marry. [Some comparisons are odious, but I hope this is not one of them. The *new* Union has larger annual expenses, owing to the annual conventions, and salary paid to the secretary. All of this money is legitimately used, and is productive of good. The old Union confines its labors entirely to the defense issue; the new Union takes up the whole field, defense and adulteration, besides helping to foster our national bee-keepers' convention, an institution that brings our best men face to face and hand to hand. What we want the Union to do is to use the money for the best interests of the pursuit, and yet keep a comfortable surplus. The new Union has a large membership, and yet enough money back of it to keep it financially in good trim.—ED.]

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

BY "STENOG."

Un pour tous, et tous pour un.—French motto.

One for all, and all for one:
Such is the motto of the hives;
Why can not men adopt the plan,
And make more sweet their lives?

AMERICAN BEE JOURNAL.

Mr. Thaddeus H. Keeler says he has "fallen in love with the tall sections."

Mr. A. B. Bates tells why, in his opinion, Italians store better honey than blacks. It's pretty hard to show he is wrong in the following reasoning:

Honey is heavier than water, and, as a natural consequence, the richer of the saccharine substance would settle to the bottom; and while black bees during a copious flow of honey might store as much honey (less

Digitized by Google

the weight of the evaporation of water it contains), the Italian bee, having a longer reach, cleans out the cup of the blossom-cell to the bottom, giving us not only a richer and finer quality from the same bloom, but the honey requires less ripening or evaporation of water. The same quantity when first stored would result, in weight and bulk when ripened, largely in favor of the Italians. My observation is, that the same size of comb when first stored by the Italian is more dense, needs less ripening, and is, therefore, heavier than that of the black.

To fasten foundation into brood-frames, Mr. L. E. Thompson says he saws the top-bar in two lengthwise to within an inch of the end. Slip the sheet in and nail the frame together. E. R. R. says this is a very old idea.

J. A. Bearden, of Tennessee, says a ten-frame hive is better than an eight-frame in his latitude. He describes a hive-tool that seems to me to be a good thing; but what a pity there is no cut of it! The description occupies two inches, while a cut would not need to be more than half an inch, to say nothing of clearness, and time saved.

On the first page of this journal, Jan. 12, Prof. Cook gives his views on the nature of honey-dew. The interest with which he clothes the subject makes one wish, as Oliver Twist did for soup, for "a little more." The tenor of the article is to show that honey-dew is not of plant origin, but from the larvæ of insects working in scores. His conclusions are, as stated by himself:

Honey-dew is always a secretion from insects. It is always wholesome, and often delicious. It may be produced in exceeding quantities, and become the source of much honey. In such cases, coccid honey-dew will often be rank and ill flavored, and should be kept as much as possible by itself, and sold for other purpose than table use. Honey-dew is secreted by insects to serve them in attracting bees, etc., which shall repel the bird enemies of the nectar-secreting insects."

The article goes far toward rendering honey-dew honey more palatable. Wouldn't it be a good plan to avoid the use of such a word as "lice" in speaking of aphides? There's much in a name. Some don't like a fiddle in church, while a violin charms them. By the way, Prof. Cook's idea of a summary at the end of an article is excellent.

C. Davenport, of Minnesota, following the above, gives an account of the remarkable endurance of bees in cold weather. On the 20th of last November, the mercury fell to 18° below zero. A terrific wind blew, and the air was filled with ice and flying snow. Some hives were uncovered, and some tipped over. They were thus exposed from some time in the night till the next afternoon. Although many bees perished, no colony was destroyed. The loss in many hives not disturbed was about as great, however. As bees can work well at a temperature of 104, this shows that they can live without "clothes" in a range of 122 degrees.

"Honey as a Fat-producer" is discussed by Dr. Miller. An excellent half-tone of the doctor is also given; and if the object in showing it is to afford a "word-picture" of the fattening power of honey, then there's hope for those who have become tired of so many "anti-fat" remedies; for certainly our friend looks comfortable. In answer to the question as to whether honey is conducive to fatness, he admits he doesn't know, but seems to think, from analogy with corn and sugar, that it is. Probably, however, the chief value of honey is as an assimilant of other foods. It causes other food to agree with me, and, when used with milk, that is enough of itself to furnish a complete meal. The use of honey rapidly creates a liking for more. A few years ago I could eat only a spoonful, while now half a common section is none too much.

The above was written before I read what is said on page 27 about great honey-eaters. It seems that Mr. York doubted whether three persons ever ate a pound of comb honey at one sitting. Mr. Murry says two often eat that much. Certainly—why not? Evidently Mr. York can't *bear* honey as well as some of us human bruins can. I can eat half a pound of good clover honey at one meal any day, with impunity (or milk without the impunity). But I never eat on a wager nor to show what I can do. I eat to live, and stop when I have enough.

AMERICAN BEE-KEEPER.

The editor strongly favors a test of *Apis dorsata*, and gives a fine view of this bee, greatly enlarged.

G. M. Doolittle follows with an article on that important subject, getting ready for next season. Doolittle can't be condensed, so he must be handed over bodily.

A. E. Manum has begun a series of articles on the proper size of hive. He takes neither extreme, but proposes to show why large ones should be used in some places and small ones in others. Mr. Manum's experience will enable him to handle the question in a scientific manner.

J. Ikeda, of Tokyo, Japan, has an illustrated article on bee-keeping in his country. Their quaint way of bleaching wax, cutting out comb, pressing out inferior honey, etc., is interesting, as the picture shows how it is done. Mr. Ikeda publishes an agricultural journal in his language, with a bee department.

Arizona honey is described by C. A. Hatch, of Wisconsin—a man who knows how to do it. There are three main sources in the valley of the Salt River — mesquite, alfalfa, and wild ground-cherry. He says the average quality of the honey produced there is rather inferior to that of white clover and basswood Mesquite is the lightest in color and best in flavor. But alfalfa is *the* honey-plant. When that fails, all else is minus.

The close connection between good prices for honey and a good salesman is shown by Mr. Hill in the fact that M. M. Baldridge sells

Digitized by Google

five-pound pails of extracted honey in the vicinity of Chicago for $1.20—24 cts. a pound! Mr. Baldridge must be a graduate of some standard typewriter company.

The editor offers to be one of a hundred who will give $1.00 or $5 00 to prosecute the men who robbed Edward Smith, of Illinois, of his honey, a full account of which we gave in our issue for Nov. 15.

PROGRESSIVE BEE-KEEPER.

As to burr-combs and width of top-bars, as discussed by G. M. Doolittle, in his "Recapitulation," see editorials in this issue.

F. L. Thompson, in the December issue, makes a good point in his protest against the persistent advertising of *pure* bees' honey—as if pure honey were the exception, and bees only one kind of creatures that store it. He thinks it creates an unjust suspicion. He well says, "The *only* honey is bees' honey."

R. C. Aikin contributes Chap. XIV. of his article on hives, here speaking of size, form, and manipulation. Quite likely these articles in pamphlet form would be what Horace Greeley called "mighty interesting reading," and a valuable addition to standard bee-literature. Mr. Aikin's experience is so long and varied as to add weight to his conclusions.

HE OR SHE.

Confab between Dr. Miller and E. E. Hasty.

Did you ever see such audacity as that displayed by that man E. E. Hasty? I called his attention to the fact that he owed Mrs. Bee an apology for calling her "Mr." Bee, and, instead of promptly apologizing to her, as any gentleman ought, he just gets stubborn, and insists he's going to keep right on being impolite, and will call her "Mr." whenever he likes. See *Review*, p. 365, which I hope you will copy, just to show how naughty he is. I might have let the matter pass in silence if he hadn't told in the last sentence what ails me. I don't think it's nice of him to twit me of it, even if I do like to show off. Lest he should get a following, I hasten to do my best to show his heresies.

"Bible usage, literary usage, and household usage" are claimed as supporting the practice of calling a worker bee *he*. Friend Hasty, why didn't you give us a few illustrations? Suppose we look at the Bible. I think there is no place in the Bible where a pronoun in the singular is used for the word *bee*. The ant, however, is a near neighbor, of which it is said, "Go to the ant, thou sluggard; consider her ways, and be wise." Notice that *her*, Hasty. Also in this: "The spider taketh hold with her hands, and is in kings' palaces." You will find places where the masculine is used to represent both sexes in general, but I have some doubt whether you will find in the Bible any case where the female is referred to and called *he*. I'm just wondering whether this hasn't been a deep-laid scheme of Hasty's to get me to read my Bible.

In literary usage, there comes to mind that classic gem about the bee, which says, if my memory is not at fault,

> How skillfully she builds her cell!
> How neat she spreads her wax!

As to household usage, I think I have yet to hear for the first time a worker bee called *he*—always *it*.

That calf story doesn't count. Those poor misguided boys are not to blame for using bad language with such a man as "Uncle Emerson" to teach them. The only wonder is that that calf isn't called John instead of Dinah. Right in that same line it just occurs to me that I've often heard a male cat called *she*, but I think I never heard a female cat called *he*.

Logically you think the worker should be called *it*, but dislike that on account of stiffness. I don't see that it makes it a whit more limber to say *he*. At any rate, I don't believe you ever hear any one call a fly *he*, nor indeed any other insect, except you and your kind when talking about bees. You always speak of any other insect as *it*.

But *is* the worker functionally a neuter? Her functions are to keep house, nurse the babies, and hustle around to get something to put on the table. If those are neuter functions, then all of our household goddesses should be addressed as *it*.

"Tell you what ails you," Hasty. You've been living so long on one meal a week, taking 12 ounces of honey at a mouthful, that you've become somewhat dyspeptic, and have soured on the female persuasion, else you never would get stubborn and act this way when one tries to teach you your manners.

Marengo, Ill., Jan. 11. C. C. MILLER.

[The paragraph in the *Review* reads as follows:—ED.]

No, comrade Miller, that apology to Mrs. Bee will not be forthcoming. Hasty wouldn't be Hasty unless he could face the nearly unanimous company of his fellow bee-beepers, and smoothly tell them that they are wrong. The habit of calling the worker-bee "she" is a mere fad, not well founded in the facts, not in accord with the best usage of our language; and the rest of the human race not bee-keepers neither follow nor like the usage. Unless I mistake badly, Bible usage, literary usage, and household usage are all three in accord in allowing masculine forms to be used for real females, whenever the matter of sex is immaterial or inconspicuous (especially when the writer desires his reader to ignore it), and still more is this the case with bees, which are not practically females but neuters. At our house they are raising a nice calf. Its name is Dinah. The two little boys of the house and their mother are specially interested in the calf. Now, when Dinah's name is put in a sentence the pronouns must, of course, be feminine; but otherwise masculine pronouns are sometimes heard. "*He* capers." "*He* has very small and quite sharp horns." "*He* thinks it a solemn duty to drink up all that's offered him, no matter how much there may be of it." If I am right this style of speaking is nearly or quite universal; and popular usage, when founded in reason, always defeats in the end even the great

Digitized by Google

grammarians of the language—and Hasty figures that you will be defeated, ought to be if you are not.

What are the absolute facts of the case? The worker (barring a few exceptional ones) is *anatomically* a female, but *functionally* a neuter. If we say "he" we contradict the anatomical truth. If we say "she" we contradict the functional truth. Can't help doing one or t'other. Which, then, is the less important aspect of the two, that we may contradic that? I think that we must say that the anatomical aspect is usually less important. The strictly logical result would be the use of neuter pronouns; but neuter pronouns used of living things, gives a stiffness to our discourse which is not agreeable. Both speaker and hearer feel better when the pronouns are thrown into the masculine, which is perfectly admissible. Though you paint an inch thick you can't get rid of the ugly fact that readers will feel that sex must be important in some way if feminine pronouns, in non-figurative discourse, are used of an insect; and that is really the most important consideration we have to meet in the case. Tell you what ails you, brethren. You are proud of knowing more about the bee's gender than the laity do; and therefore you must needs be airing your wisdom before them, just as callow preachers air their Hebrew.

[This was submitted to Mr. Hasty, who replies in his own inimitable way:—ED.]

Is that you, Dr. Miller, gnawing at the toes of my cold corpse in the coffin of the "Condensed View"? No more than I expected—and I suppose I must wake up enough to kick a little.

Never yet heard a worker bee called "he" in household usage? This declaration is simply amazing—almost too amazing to reply to. Are we to suppose that, whenever you are in a household other than your own, you do all the talking, and never hear anybody say any thing? (When dead folks do kick they don't kick politely.) I simply wish to appeal to all observant people concerning the speech of our ordinary American folks (bee-keepers excluded), if with them a bee is not "he" a million times where it isn't *she* once—and at least twice as often as "it." The most prominent characteristic of the bee, as impressing children and common folks, is its disposition to give chase, and to sting. It thus gets itself on the same footing as the mosquito—an insect which apiarian households have no special kink in regard to. Now, when a man slaps at a mosquito and kills the game (almost breaking his own skull to do it) he gleefully shouts, "I've got *him!*"—very rarely indeed, "I've got *it;*" never known to be, "I've got *her*." Manifestly the speech would be the same if a bee instead of a mosquito were the assailant. And please notice how completely the gender is contradicted in the example given If I am right the mosquito has no neuter form, and the male seldom or never bites. "She" does all the biting, and "he" gets all the maledictions.

What the doctor says about flies and other insects seems to me to be very wild also. Yet if I should quote actual examples of such speech he stands ready to claim that some crank of an uncle, or some queer-spoken foreigner of a hired man, had corrupted the speech of that particular household—won't go at it in that way. There are certain bits of immortal writing which reflect the American household speech, and I'll go for them—not as literature particularly, but as evidence of what our household usage really is. One of the foremost of these home gems is Theodore Tilton's—

Baby bye,
Here's a fly.
Let us watch *him*, you and I,

and so on to the end, stuffed full of masculine pronouns. Note again:

"Will you walk into my parlor?" said a spider to a fly.
. . . . . Then up *he* springs; but both *his* wings
Were in the web caught fast.

Note again from "The Ant and the Cricket:"

Then away *he* went to a miserly ant,
To see if to keep *him* alive *he* would grant.

Here both ant and cricket are called "he," and the ant is a neuter, or pseudo-female, just like the bee. Note also the beautiful oriental story of Solomon and the *king* of the ants, and its pronouns.

I think I have heard that, among the *prominent* languages of the world (ancient and modern included) English is the only one that pretends to hold out for literal accuracy in the matter of gender, all the rest having idealized their genders almost entirely. And English, I have been trying to show, has gone a long distance in the same direction, or at least in the direction of optionalism, and is now holding out for only so much of literal accuracy on this point as clearness of meaning requires. No live language can stand still; and no language can easily resist the influence of other tongues round about it. Our little squad of bee-writers are trying to reform backward, in a direction counter to a powerful tide, when they want an insect which isn't a female, after all, called "she."

This alleged reform, if it could be successfully inflicted on the language, would at once create an urgent need for some other pronoun than "she" to express the *real* femininity of the queen, and perchance some day a more intense feminine pronoun would come. As an example of this sort of thing, Russian children, being obliged to call the priest "papa," now call their real papas "papinka."

I believe I didn't say that the use of feminine forms was unknown in literature, nor even that it was rare; so citations of that character contradict nothing. What I said was that masculine forms, not in strict accuracy, were fully supported by usage, and that assertion is hardly shaken yet, I think.

As to Bible usage, that is not an important corner of this controversy; but as GLEANINGS has very many Bible-lovers among its readers I should like to talk Bible a little on its own account. I believe that more than half of real Bible-lovers have never got on to the fact that the Bible *always substitutes the masculine for the neuter* in the possessive case of the pronoun. Not a single "its" in all the Bible, when there would naturally be such multitudes of them—always "his." Failure to consider this upsets the meaning of many passages. Readers, when they come to such a "his," do not dream of its referring to the neuter antecedent right at hand, but think it must refer to the Lord, or to some person not plainly in view. Age, as well as sex, is rather violently ignored in the Bible sometimes. "Ye on the sabbath day circumcise a *man*" (that is, a babe eight days old). "Christ tasted death for every *man*." Here it is certain that woman

Digitized by Google

and child as well as man are meant; and, of course, if a pronoun is called for in such a sentence it is masculine: "Man goeth to *his* long home."

When an ant is called "she" it is to answer some poetic idea, not to define gender at all; spider and bee ditto. E. E. HASTY.

Richards, O.

[Our older readers will recognize the name of Hasty as an old friend and correspondent who used to write considerably for GLEANINGS in the early '80's. He enjoys the distinction of being one of the breeziest and most interesting writers in all beedom.

I am the more interested in Hasty's side of the question, because our A B C has long used the term *he* in referring to the ordinary bee; and A. I. R. has always stuck to that use of the pronoun, and now to have so able a champion as Mr. Hasty is indeed consoling.

Dr. Miller and I have quarreled over this same question not a little; and as a sort of compromise in the last edition of our book I strove to strike middle ground; and wherever I found the pronoun *he* I changed it to *it*. But somehow it took the "life" out of much that is said. Like Hasty I associate with "he" smartness and wickedness; and with "she," softness and goodness.

I am sorry now that I did not leave it *he* all the way through. It might have raised a rumpus with Dr. Miller, but he and I are used to having squabbles.—ED.]

BEE-KEEPING IN CUBA.

The Fine Flavor of the Bellflower Honey; No Immediate Danger of Cuban Honey becoming a Competitor of American Honey.

BY W. W. SOMERFORD.

Mr. O. O. Poppleton's article in Dec. 15th GLEANINGS, "Honey from Cuba, and its Quality," is one of the best articles on the subject, of each and every location, its special flavor and quality of honey, that I have run across from the pen of any one. And, by the way, it was Mr. Poppleton who gave me the first taste of Cuban honey, out at Punta Brava de Guatao, Provincia de la Habana, almost ten years ago; and he it was who gave me my first lesson in Spanish; took me to Havana, introduced me to Dr. Warner, who gave me directions out to Mr. Casanova's apiary, twenty miles from Havana. Mr. Casanova was then one of the leading bee-keepers on the island, having over 500 modern hives, sold to him by Mr. A. J. King, of New York, the man who introduced the movable-frame hive, or modern bee-keeping, in Cuba.

But the worst feature of the introduction was foul brood, from D. A. Jones, of Beeton, Canada, along with some fine queens from him, to Pedro Casanova. As I took Mr. Casanova's apiary on halves for a number of years I know some things about foul brood in Cuba that I am going to tell before I am through writing about Cuba as the bee-man's paradise. And as to the Spanish language, the first few nights I spent on the island, ten years ago, I camped out, and couldn't then ask for a night's lodging or buy a railroad ticket. The language is going to be the drawback to Americans booming the bee-business in Cuba—more so than any thing else, for the few who are there in the swim are going to be troubled so much with beginners' questions that their answers will not always be as kind and plentiful as Mr. Poppleton's were to me. Mr. P. forgot to mention the best trait that I found in the bellflower honey of Cuba, and that is its eating *quantity*. I say "quantity," for the more or the longer a fellow eats it the better he likes it; so when you sell to a customer you're sure of selling to him again, as the Cuban "campanilla" (or bellflower) honey is something fine—too nice, I think, to be compared with basswood honey; for if it is like Texas basswood honey, and you sell a man a five-gallon can of it, you are not apt to sell him any more—not inside of three years.

But all the honey produced in Cuba is not so fine. The honey from royal palm is the bee-keeper's standby, as it blooms every day in the year, and yields a solid stream of honey the year round, sufficient to keep bees booming, except during the 90 days it rains; and as it rains sometimes the full 90 days, without missing a day, the palm honey is washed out so clean and so often that black bees starve by the wholesale in September and October unless fed plentifully when stores run out. I say "plentifully," because it takes lots of feed to keep up eight or ten frames of brood together with a big swarm of bees. But the palm makes up for lost time in November and December by yielding several supers of thick dark honey, about the color of sorghum syrup, with a twang to it that always shows it to be pure Cuban honey in flavor. I mention this, for Mr. Fred Craycraft told me about extracting 700 gallons of pure sugar-cane honey, gathered by the bees from the burnt cane-fields during the first year of the war, the cane being burned sufficiently to kill it. After being killed it cracked open, and, of course, the juice ran out and candied, and the dews and showers melted the candy into molasses, so the bee had nothing to do but bring in the pure cane syrup; and pure it must have been, for the buyers only laughed at Mr. Craycraft when he offered it for sale as honey.

Mr. Poppleton, in closing his valuable article on Cuban honey, says: "Should very many American bee-keepers set up business in Cuba I think Mr. Coggshall, as well as a good many more of us, will find their rivalry a much more serious matter than we shall enjoy." The "seriousness" of competition from Cuba, in the way of honey, looked away off yonder to me, while rambling among the war ruins, and while observing the ropy, infallible evidence of foul brood, as something not very "serious;" and I am afraid I shall die of natural old age before very many Americans "enjoy" or luxuriate on cheap honey from Cuba. In the first place, Cuba is not a whale for size; and in the second place, as nearly as I could see and learn, there is not more than half of it that will do at all to keep bees on,

Digitized by Google

except as a side issue; and side-issue bee-keeping in the tropics, where web-worms crawl 12 months in the year, will never affect such men as Coggshall nor O. O. Poppleton; for I suppose Mr. P. will be growing Florida oranges in Cuba, and raising honey as a side issue; for fruit is bound to win the day in Cuba.

Navasota, Tex., Jan. 7.

EXPERIMENTS WITH DRAWN FOUNDATION.

An Interesting Article.

BY PROF. C. P. GILLETTE.

[The following is a paper read at the last Colorado State Convention by the Professor of Entomology, C. P. Gillette, at the State Agricultural College. It was sent us in manuscript by Mr. F. L. Thompson, who suggests that it should have a wider circulation than it would have by being a part of the report.—ED.]

Last spring I obtained a quantity of drawn comb foundation from The A. I. Root Co., for the purpose of comparing its use in sections with the use of the ordinary thin foundation. In order to make a proper comparison the sections were filled half with drawn and half with plain foundation, the foundation extending about two-thirds of the way down in the section so that the lower third would be, in each case, all natural comb.

There was no question but that the bees went to work more freely upon the drawn foundation. Some of the colonies worked for several days upon the drawn foundation before beginning on the undrawn. They do not, however, begin storing honey at once in the partly drawn artificial cells. They never fail to go over every part of the surface of the cell with their mandibles, so biting and roughening it as to render it more translucent. After the cells had been worked over, and before they had been drawn out further, the thickness was found to be reduced about $\frac{1}{16}$ inch, or, in round numbers, the whole thickness was reduced one-sixth.

Another advantage from the use of the drawn foundation was in the tendency to unite the sides quickly and completely to the section without leaving holes for passageways. Where there is a thin foundation only, this is often done, but the bees seem to be loath to tear down the comb cells for this purpose. It was also noticed that in sections having drawn foundation the combs were, on an average, built more strongly to the sections and with fewer passageways through the sides and corners.

The sections on being removed from the hive were as white and beautiful as any, and I doubt if any but the most notional would detect an unpleasant flavor or thickness in the comb. But if the honey be extracted and the comb washed and examined, it will be noticed that the lower half of the cells, and the septum, are of an amber or beeswax color, quite in contrast to the exquisite whiteness of comb that has been made entirely by the bees.

I found that, after carefully removing the cells from the septum in natural comb, it would require an average of 18.8 square feet of the septum to weigh a pound. From similar computations I found that the septum of comb built from drawn artificial foundation required only 13 square feet to the pound. At the same time I found that the septum of the artificial drawn foundation, after the removal of the cells, would require 21.8 square feet to weigh a pound, which shows that the artificial septum, before it is worked, is lighter than the natural. This seemed to me to indicate very strongly that the bees, instead of thinning this foundation, really thickened it by adding to it.

To further test this point, I took samples of foundation of three different weights, one being a very heavy product of home manufacture obtained from Mr. Frank Rauchfuss; another was a medium-weight brood foundation, and the third was a good quality of very thin foundation for use in sections. In each case I carefully weighed accurately measured pieces of the foundation before the bees had touched it, and then similar pieces of the septum of comb built on each kind of foundation, and the following table shows the results:—

	Heavy Foundation.		Brood Foundation.		Thin Foundation.		Drawn Foundation.		Natural.
	Fdn.	Septum	Fdn.	Septum	Fdn.	Septum	Fdn.	Septum	
Weight per square inch	10.4 gr.	7.8 gr.	8.8 gr.	4.7 gr.	4 1 gr	3.7 gr.	2.06 gr.	4.10 gr.	2.05 gr.
	11. "					2.7 "	2.40 "	3 20 "	2.50 "
								3.86 "	3.20 "
Average weight...	10 7 "	7.8 "	8.8 "	4.7 "	4.1 "	3.2 "	2.23 "	3.72 "	2.58 "
Square feet in a pound..	4.5 "	6.2 "	5.5 "	10.8 "	11.9 "	15.2 "	21.8 "	13. "	18.8 "
Weight reduced	25 per cent.		46.6 per cent.		22 per cent.		Inc. 67 per cent.		

WEIGHTS OF FOUNDATION AND COMB SEPTA.

The table shows very conclusively, as do the samples of foundation and comb septa that I here show, that in cases where heavy foundation, or even the thinnest of ordinary foundation, is used, the bees thin the foundation before storing honey upon it.

The added weight in cases of drawn foundation seems to be due largely to thickened deposits made upon the septum along some of the angles, and not to an even distribution of the added wax. These thickened deposits may be quite plainly seen by looking through the comb toward the light. These deposits are much more abundant in some pieces than in others, and just what their occasion may be I can not say. Perhaps the angles at the bottom of the cells are not just as the bee would make them, or perhaps there are other imperfections in the cell that the bees cover over. These deposits are absent in natural comb, and I find very few of them in comb built from or-

Digitized by Google

dinary foundation. According to the weighings that I have made, the amount added is equal to about two-thirds the weight of the septum in natural comb, so the saving of wax from the use of the drawn foundation would not be as much as would at first seem.

On the whole I am pleased with the drawn foundation, and would heartily recommend its trial, at least, by the practical bee-keeper who wishes to obtain the largest possible crop of comb honey.

[In commenting on the above, Mr. Thompson adds the following.—ED.]

The samples of foundation and septa which Prof. Gillette passed around were arranged in pairs, each pair clamped at the ends between two pieces of section wood, clinched together with light nails. They illustrated very completely all the points which the lecturer made. In addition there were some sections containing uncapped and extracted comb built from drawn foundation, etc. One of these sections contained a starter of the heavy brood foundation mentioned, the lower edge of which was blackened by lampblack. This had been left but a short time with the bees, so that the cells were scarcely altered: but at the juncture of the foundation with the wood on both sides, and along the V grooves, even the bottom ones, were vivid inky lines, showing that the bees not only thin foundation, but also carry away the wax thus obtained and use it elsewhere.

In regard to the reason why the bees should deposit wax along the angles of drawn foundation, Mr. Aikin thought it might be because the bees always desire to first make the cell-base rounding. This they always do in building natural comb, and in thinning foundation, not making the three flat little surfaces appear in each base until afterward. The high side walls in drawn foundation keep them from going through the rounding-out process in the ordinary way, and so they approximate to it by depositing wax in the angles. Again, bees always make a thick line of wax at the *edge* of what they are working at, whether cell-bases or cell-walls; and thinning is not done unless the portions to be thinned can be got at from all sides. These are not just Mr. Aikin's words, but I think they represent his idea. He is also of the opinion that factory-made foundation is pressed too hard to be easily worked by the bees.

The point occurred to me, which Mr. Aikin agreed with me in thinking important, that a good supplementary experiment would be to make from natural comb an imitation of the artificial drawn foundation, by cutting off the cells on both sides at the proper depth, and putting this in sections; then after completed honey-comb has been built upon it, extract, remove cell-walls, wash, and weigh the septum, just as was done with the septum of drawn foundation after it had been worked by the bees; and compare the results with the septum of worked drawn foundation on the one hand and the septum of *once* built natural comb on the other. If it should prove no heavier than the latter, that would show that the reason bees increase the weight of drawn foundation is in some way connected with its manufacture; but if it should show an increase in weight similar to that which takes place in the septum of drawn foundation, then it would show that there is no use in trying to make more perfect artificial comb, because perfection itself — natural comb — fails under those conditions. I suspect that the latter will be found to be the case, for we know already that bait combs are gobbier than those built while the honey is stored.

Prof. Gillette's table is also of interest in another way, for the "very heavy foundation" he refers to was made on my Rietsche press, and is a little heavier than I succeeded in getting it; and the medium brood foundation is Dadant's make, by the Weed process, and was quite fresh when the test was made. Of this, more later.

Denver, Col., Dec. 19, 1898.

[Mr. Weed replies:]

The fact that the drawn foundation had a thinner septum than natural comb, fully accounts for the thickening mentioned. I find that, where the base is as heavy as or heavier than natural comb, no such thickening takes place. Where the base of the cells is cut clear through, the patching is very noticeable. I don't think it is quite fair to test drawn foundation and ordinary foundation side by side. It is admitted that bees transfer wax from one comb to another, and I am positive that, in some cases, at least, the old style of foundation is the gainer through the proximity of the drawn foundation. Again, it is probable that it is natural for the bees to secrete a certain amount of wax in a honey flow; and where the two styles of foundation are side by side they might use the newly secreted wax upon the old style of foundation where it was needed more than upon the drawn foundation.

Regarding the difference in color, I find that, where wax is reworked by the bees, the yellow tinge entirely disappears; and it seems probable that a foundation with a thin base, and heavy wall, of moderate height (say ⅛-inch), will have every advantage that last season's drawn foundation possessed.

Medina, O. E. B. WEED.

DRAWN FOUNDATION.

A Careful Examination of its Advantages.

BY L. STACHELHAUSEN.

In GLEANINGS for Nov. 1 I find an editorial about your drawn foundation, and it seems you are willing to give up the manufacture of the same. I should be sorry for this, because I still think that this foundation has some advantages if used in the right way. I am the only one of your readers who reported favorably on it, and so I hope you will give me some space to defend my position.

You tell us that Mr. Niver and Mr. Coggshall found, during the buckwheat flow, that the bees draw out and fill the drawn foundation at about the same time as common foun-

Digitized by Google

dation. I think that any bee-keeper of experience would expect this. It is my practice, and has been for many years, to bring two or three frames with full sheets of foundation, alternating with extracted combs, into my extracting-supers, for the main purpose of multiplying my store of extracting-combs. During a *fast and good honey-flow* the bees work out, fill, and cap these foundations in about the same time as the extracted combs. In a slow and moderate honey-flow they act quite differently. The extracted combs are used first, and the foundation is not used at all; then the cells of the combs next to the foundation are prolonged; and finally, when the bees need more cells, the foundation is drawn, and we have a comb with some honey in it, but only half as thick as a regular comb. If we fill a super with foundation only, the bees are slow in commencing the work in it, and sometimes fill all empty cells in the brood-chamber before they start to work on the foundation. To prevent this we give at least a few frames with drawn combs in the supers as bait-combs. Quite the same thing is true with section-supers. During a good honey-flow, when the bees have already commenced the work in the supers, I have found very little difference whether drawn combs, full sheets of foundation, or starters only were given.

The problem is, to induce the bees to work in the sections. For this purpose bait combs are recommended, and used with advantage. In many cases they are absolutely necessary; but they are not always at hand. For this purpose I think the drawn foundation with natural base even better than natural combs; but it seems you are asking of this foundation still more, and something that no natural comb ever fulfilled. If you are willing to manufacture a combination of drawn and common foundation, you will surely have the same experience; they will be filled with honey at the same time as common foundation, if placed side by side in the same super during a good honey-flow.

The reason why I think the drawn foundation better than drawn combs for bait-combs is as follows: It is a fact that the bees at once repair all empty combs from which the thickened edge is cut off; for instance, extracted combs May be they deem these thin side-walls not strong enough for a foothold. Strong edges are built on the cell-walls. To do this the bees have to cluster on the combs; and this is what we expect from a bait-comb. The drawn foundation is, in fact, nothing else than a comb from which the strong edge is removed, and for this reason it is especially fit as a bait-comb. If you will read my article in GLEANINGS for July 15 you will see that I recommended this foundation for bait-combs only, and I foretold the experience of Mr. Niver and Mr. Coggshall when I said that, under certain conditions, common foundation is drawn and used for storing honey at the same time that natural combs are used by the bees. Besides this, if these two gentlemen had filled the super with common foundation only, I am not quite sure whether the bees would have worked as soon as they did when a few sections with drawn foundation were in this super. When they worked at once on all sections, it is no proof that the drawn foundation did not work as a bait.

I am fully convinced that we often use drawn combs when the bees would build out foundation without cost, and that we just as often use full sheets of foundation when the bees would build combs from starters in the same time, and would store the same amount of honey in them. It is just the same with drawn foundation. Its use can be of great advantage at proper circumstances, and under other conditions it may have no advantage over common foundation, and not even over starters.

So the experience of these gentlemen does not prove any thing against the drawn foundation; and if the manufacture of the same is not too difficult you surely should not give up something that, in my opinion, will prove to be a great benefit to the comb-honey producer.

Converse, Tex., Dec. 12, 1898.

[I submitted this manuscript to Mr. E. B. Weed, who, after reading the same, wrote this reply:]

Mr. Stachelhausen's article is evidently the result of careful and prolonged observation, and I agree with his conclusion that the value of foundation depends largely upon the conditions under which it is used. If the drawn foundation with a natural base had been on the market early last spring I feel confident we should have had plenty of favorable reports.

The experience of Mr. Vernon Burt is a case in point. I took him a number of sections filled with drawn foundation to test; but his first supers were already full. He willingly consented to put the new product side by side with ordinary foundation in the second supers, but said that, toward the latter part of a honey-flow, he had noticed that ordinary foundation was often as good as drawn combs. For the first super, however, he places a high value on the latter. As he had predicted in this case, both kinds of foundation were finished simultaneously, but he still agrees with Mr. Stachelhausen as to the value of drawn foundation early in the season. Mr. Danzenbaker ordered enough drawn foundation to fill a thousand sections, in time to use it for the first honey-flow last spring, and his report is very favorable indeed. In this case it was both begun and capped much sooner than ordinary foundation. Mr. Stachelhausen has noticed that drawn foundation is in some respects better than natural comb. I believe we can go a step farther, and do better yet. From my point of view the ideal foundation should have a base as thin as natural comb, and enough wax in the wall to materially assist the bees to construct the comb. We have had foundation-mills that would make foundation with a base almost as delicate as natural comb, and we have had mills that would make foundation one-fourth of an inch thick; but a heavy base has always gone with deep-cell foundation, so that it could not be used in the sections where it is most needed.

Digitized by Google

I expect to produce a foundation with deep cells and a thin base, and am confident that its advantages will at once be recognized.

E. B. WEED.

JAMAICA NOTES.

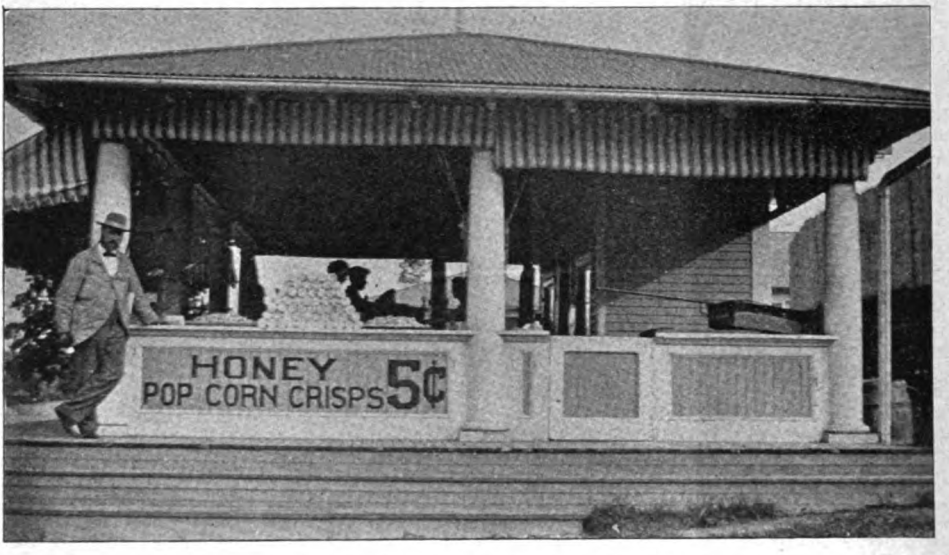
The Honey Flora of that Island; Drawbacks, etc.

BY H. G. BURNET.

We have had perfect weather, apiculturally, for the past year, and bees have done very well indeed where proper care has been exercised. Just now they are booming on logwood and "Christmas pop" bloom, both of which yield an abundant supply of fine-flavored light-colored honey, fully the equal of clover. Christmas pop is the bellflower of Cuba, from which such large yields are secured. We have it all over this island, and have the logwood also, which Cuba does not have, which is unexcelled as a source of honey, and never fails. The bellflower begins in November, and the bees build up good and strong, so that, when the logwood begins the latter part of December or early in January, it all goes for surplus. The bellflower is a white morning-glory, and yields an abundance of pollen as well as honey—so much so that the bees look as if they had rolled in flour, and it is comical to see them come into the hives. Fully half will bump against the hive and fall on the ground or grass, where they will stop long enough to give their eyes a few vigorous rubs to get the pollen out, then fly in all right. Bellflower and logwood last for about three months. One peculiarity of logwood is that it does not bloom at the same time in all parts of the island, and in some parts it blooms twice, so that migratory bee-keeping would be profitable.

On the dry plains a splendid quality of honey is obtained from the cashaw, a variety of acacia, which thrives only in dry locations. There is hardly a month in the year when we do not get more or less surplus. Of course, there are drawbacks. We have almost no local market, and have to ship to London; but honey properly put up and graded will net from 3 to 5 cents per pound, which will give very profitable returns to a "business apiculturist"—a *specialist.*

Toads are a great nuisance, and bees must be on stands at least two feet from the ground or the toads will get at them; and as our toads are of the Surinam variety—about the largest in the world—they can stow away an enormous number if they have free access. I have known them to travel at least three hundred feet and back in one night to an apiary; and sometimes very early in the morning, during bellflower bloom, I find them in front of the hives to snap up the dusty-eyed workers that fall in the grass.



A HONEY-POPCORN PAVILION. SEE EDITORIALS.

Apiculture is being boomed in the island lately, and the supply-men are reaping a harvest. "Root's goods" are the only kind imported. Some amateurs are going in quite heavily, and will possibly gain experience and lose money in proportion; but for the specialist I know of no better place in the world, all things considered.

At a recent apicultural fair Root's goods were shown; also Italian bees and queens; an extractor in operation, etc., all of which attracted a great deal of attention, and kept the genial exhibitor, Mr. Doidge, busy replying to the many queries from the people who crowded about. With all the bee-keepers we have we should have an organized society for the benefit of the fraternity.

Now, Uncle Amos, the next time you travel

Digitized by Google

we want you to come to Jamaica. You will see plenty of springs, water power, waterfalls, caves, irrigation works, magnificent scenery, gardens (we have Earliest berries, ripe now), and as many hospitable people as you ever found anywhere. Won't you come?

Linstead, Jamaica, Dec. 22, 1898.

[Thanks for your very kind invitation, friend B. I have been talking about Jamaica and the neighboring islands; but I confess my enthusiasm gets a damper when I think of being seasick, not only 48 hours, but almost a week. Perhaps I might go down to Florida by rail, and thus get around old Neptune a little. I should be very glad indeed to visit your tropical island.—A. I. R.]

THOSE HONEY-LEAFLETS.

When and Where Not an Aid in Selling Honey.

BY J. L. HYDE.

I see by GLEANINGS that you wish reports on the honey-leaflets. I have used them to some extent, but not as often as I shall in the future if I try to sell honey. I have distributed them with the honey sold, at people's houses, while selling honey from door to door, and by leaving them at the stores when I make a sale of honey. I can't say that I received many responses from those that were sent out with the honey; for if they liked my honey they would buy again; but if not, nothing that they would read or that I could say would induce them to buy any more. I know where I have left them, when on my first journey selling honey, the people that refused to buy at first would buy on my second trip. I can not say that the leaflets sold the honey, though; but it seems to me that, if you leave something with your name on while on your first journey, they would have more confidence in you when they see you the second time, whether they read all in the leaflet or not. In regard to leaving them when selling honey at the stores, I have but one report to make that would go to show that they did any good.

This one is a fish-dealer, and carries my honey put up in 1-lb. jars on his wagon while peddling fish. At first he was met by people who complained that it was cheaper to buy it without the jar, as somebody was selling 4 pounds for $1.00 put up in some kind of a tin pail, taken right from the bees, while he sold mine for 20 cts. per pound with jar. He said that the one who had it put up in tin pails could sell his while mine would not sell, because it would seem to the one who bought it as if it had been "monkeyed" with; so I put him up some of my honey in three and four pound cans so that he might sell them for 65 and 75 cts. per can. He reported, a short time after, that, though he could not sell any honey in the cans, the scheme, together with distributing the leaflets, killed the other man's trade and boomed his own; and a while afterward he reported, while I was talking with him about his increase in his honey sales, that those leaflets were what started the honey going. He said he printed his own name on them, which advertised his business as well. I think that the honey-leaflets are all right as an advertisement; but if something about how bees make honey could be added to it it would make the reading still more interesting, so that they would be more sought after, for very few people know how honey is made, and they are greatly interested when talking to them about it.

Providence, R. I.

THE DICKEL THEORY.

Selection from the Proceedings of the Wander-Versammlung of the German-Austrian and Hungarian Bee-keepers.

BY F. GREINER.

The convention was held in Salzburg, Austria, September 4–8, and about 300 bee-keepers attended. From the proceedings I select but two addresses, and can give these only in extract. Dr. Dzierzon, as the first speaker, gave his views and ideas about as follows:

We celebrate to-day the 48d Wander-Versammlung. Really it should be the 49th, for we organized in 1850, in the city of Arnstadt; but on account of three wars occurring, six years were passed by without holding a convention.

The bee-keeping industry has made more progress during these nearly fifty years than it had before in many centuries. Men holding opposite views, meeting one another face to face, soon found out the true state of things, although some wrongly conceived ideas and theories were uprooted only after long fierce battling. For instance, it was believed, even by Baron von Berlepsch, for a time, that the queen laid only the eggs for workers and queens, but not for the drones. Drone-laying workers were believed to attend to that.

Feb. 13, 1853, I received the first colony of Italian bees, and soon after, the matter was easily sifted to the satisfaction of everybody. In the following fall I sent two Italian queens to Berlepsch, and soon after that he had the satisfaction of seeing yellow drones emerge when there was no possibility but that the eggs that produced them must have been laid by the queen, for all worker-bees were black. The introduction of the Italian bee helped to prove, also, that the queen meets the drone outside of the hive. It helped to unravel other mysteries. It was not well understood that the queen should be able to determine the sex of her offspring. I discovered that drone eggs did not require the fertilizing influence of the spermatozoa, but would produce drones without. I then concluded that the laying of fertilized eggs (producing queen or workers) and the laying of unfertilized eggs (producing drones) was subject to the queen's will. Our noted scientists have assented to this theory. No doubts were expressed for many years till now by Dickel. He asks: "Where in all the world is there another such case where a mother can determine the sex of her offspring?" But what of that? Even if the queen should be the only exception in nature she does it, and therefore she has the ability. All of Dickel's experiments prove nothing. His whole theory is without foundation. I think it would be desirable that no more time be wasted with it.

According to the program, Dickel was not to speak till the next day. He then made his reply, which in substance was about as follows:

For many centuries the people in general, and especially the scientists, have been marveling over the mystery of how the sex of offspring is decided. Even the bee-keepers have tried their hand to solve this question; but it seems so far they have stood outside of or in opposition to the known laws of nature. Before I develop my new theory, allow me to briefly state the old, to which we have held:

"In 1854 Dr. Dzierzon reasoned, based upon his observations, that the mother-bee has the faculty of laying impregnated and unimpregnated eggs at will. From the first named, female and worker bees develop; from the latter, males or drones."

Digitized by Google

Indeed, it is beyond any doubt that eggs from laying workers, or unmated queens, that can not have received any spermatozoa, do produce drones, but this does not yet prove that, under normal conditions, drones are produced from unimpregnated eggs. However, something happened in 1855 that compelled all who were antagonistic to the Dzierzon theory to hold their peace. Prof. Siebold discovered, after careful microscopical examinations, that eggs taken from worker-cells contained sperm; eggs from drone-cells, not. Since there was no greater master to oppose Siebold, the matter has rested there, scarcely any objection having been raised since. But I acknowledge only one master, and that is penetrating observation—the true natural science.

It is sometimes said that nothing new or of importance has recently been offered in bee-science; but that is not quite true. For instance, who of the older scientists knew any thing about transferring eggs and larvæ? Well, with the help of these "kinks" I was enabled to prove what for a long time had been my conviction; viz., that a normal queen lays only impregnated eggs, and that it is the mission of the nurse-bees to decide whether queen, worker-bee, or drone is to be the outcome. You may imagine that a great many experiments had to be made before I found the desired proof. My greatest difficulty was to transfer eggs successfully. As last I did succeed, using for an instrument a needle bent at the point.

I ask you to see for yourself, and repeat the following experiment: Transfer perfectly fresh eggs from a drone comb to a worker comb, and give this to a colony that has been queenless long enough to have become somewhat apathetic. The bees will not accept transferred eggs, but tear them out. The development of these eggs will show that workers and queens may be produced from drone eggs.

Another experiment, still easier, is the following: Remove from a drone comb all larvæ, and replace with just hatched larvæ from a worker comb, and give the one thus prepared to a colony under the same conditions as before. You will then see queens and drones hatch from the impregnated or worker eggs, even after they had hatched out. Any one may make these experiments and convince himself.

If we, then, bring the proof that the male as well as the female individuals originate from the impregnated eggs, we add nothing to natural science. This has been known for a long time. It has been denied only by us bee keepers. Different, however, is it with the question, "What influence controls the sex of the offspring?" Scientists have held that all eggs are alike from the beginning, having the male and female rudimentary beginnings side and side, the act of coition deciding which of the two elements is to develop. Reasoning from the outcome of our experiments, what are we to say in this matter? Through Dzierzon we know that unfertilized eggs produce male offspring; and Berlepsch expressed this theory, "All eggs have from beginning the male tendency." We can now enlarge and perfect the theory by adding, "By the spermatozoa that each egg receives as it is being laid, it receives with it the female tendency, and both are then represented in equal strength." If you will repeat my experiments you will become convinced that the workers must and do decide in which direction the egg is to develop, one or the other remaining dormant. If we herewith bring the proof that not the act of coition decides the sex of offspring, but another factor, then we have brought out a new truth for which we shall receive due credit.

Although Dr. Miller said about the Dickel theory in substance, "We can afford to let them fight it out across the water; no use of our wasting our efforts," I will not criticise the doctor. However, to me this fight is exceedingly interesting; and, though I am not able to take an active part therein, I have followed it very closely, and the reader may excuse me if, in the foregoing, I have given at least a few glimpses of the battlefield.

Naples, N. Y.

[Some little time before this we received a communication from Dr. Miller, relating to the same theory. He briefly stated the Dzierzon position, and also that of Prof. Dickel. As both of these positions are a little more fully stated above, I omit that portion of the doctor's article, giving only his conclusion; and this conclusion I am quite willing to adopt as my own.—ED.]

It would take many pages to give all the arguments that have been advanced in support of the theory, and also in rebuttal. It hardly seems wise that page after page of GLEANINGS should be occupied repeating what has been said in the German papers. If a considerable number of Germany's able investigators should embrace the new theory, it may then be time to give the reasons why we should become converts on this side. On the other hand, if it should turn out that Dzierzon is right in characterizing the new theory as rank nonsense, it will be well that so many pages have been saved for better use.

For some reason Germans are more rich in theories than Americans, and we owe them much in this regard; but it would hardly be profitable to keep fully informed as to all their theories. Some of them are no more profitable than an American theory that lived its life of several months in the year 1861, when the first volume of the *American Bee Journal* was published. E. Kirby, in order to avoid the acceptance of the theory of parthenogenesis, put forth the theory that the workers alight on the drones' backs when in flight, causing them to give off their semen, which the workers lick up and carry to their appropriate cells in their hives, for the purpose of propagating the young queens. This makes the queen all right to lay drone eggs, but she must meet the drone to prepare her for laying eggs of the other kind. That this theory should have received as much attention as it did, seems rather strange at the present day, for it was discussed in several numbers, occupying in all some eight pages.

A correspondent sends me a conundrum something after this fashion: Suppose a worker leaves a foul-broody colony and goes to the field, gathers a load of fresh honey, and on returning enters a wrong hive occupied by a healthy colony. Will that load of honey give foul brood to the healthy colony?

Without being too positive about it, I should say that the disease would not be thus given. Bees are economical of time and strength; and, if I am not mistaken, when a worker goes to the field it starts with an empty honey-sac, and when it returns from the field it has in its sac only the nectar it has gathered since leaving the hive.

There may be some danger that a young bee taking its first playspell might carry affected honey into a neighboring hive; but the great danger is that bees of a healthy colony may themselves carry the disease by robbing the diseased colony. A tenth of a drop of honey thus carried, if no attention is paid to the matter, may be enough to ruin a colony.

C. C. MILLER.

[I have had considerable experience along the line of the question asked by your correspondent. I found this to be true: That whenever a colony, perfectly healthy, faces in the same direction near another colony that was diseased, I was almost sure, sooner or later, to

Digitized by Google

find foul brood in the healthy stock. This happened so many times that we came to accept it as a matter of course that all colonies having entrances facing the same way, and near each other, would be either perfectly healthy or diseased. If one got it, the other was sure to get it later.

I do not know that this is a direct answer to your correspondent's question, but it certainly has a strong bearing on the point. It is true, that young bees might account for all the phenomena I have described; for, of course, these young chaps make a good many mistakes, and young bees are acceptable in any hive.—ED.]

TWO POINTS ON LARGE HIVES.

Strong Colonies at the end of Winter the ones to Get the Honey; Working Bees for the Harvest, and How to Get Them.

BY ADRIAN GETAZ.

Some time ago an invitation was extended to the contributors of GLEANINGS, requesting them to give their opinions on the subject of "expansion versus contraction." So far only the Dadants have responded, by an able contribution on the advantage of large hives and correspondingly large colonies. They have so well covered the subject that nothing needs to be added so far as the practical side of the question is concerned. There are, however, two points that are worth a careful investigation.

I think it is unanimously agreed (or practically so) that, by the time the main honey-flow comes, the brood-nest ought to be full of brood and honey, so that, when the flow comes, the honey would necessarily go into the sections. So far, so good; but is it sufficient for the best results? Not in my locality. With me the colonies that are the strongest at the beginning of the season or at the end of the winter are those which give the most surplus, regardless of the fact that those which were weak at the beginning may have their brood-nest just as full as the other when the flow comes.

That puzzled me a good while; but after I had thought the matter over and over, the thing appeared to me very simple and very natural. In order to get the largest surplus possible, it is necessary, not only that the brood-nest be full, but also that the number of the *field bees* in the hive should be as large as possible. How can that result be attained?

Suppose the honey-flow begins July 1st. The worker-bee emerges from the cell three weeks after the egg is laid. Two weeks after, she begins her field work. This field work lasts four weeks, and then she dies. These numbers are, of course, only approximate averages, but close enough to answer the purpose. It follows, then, that the oldest field bees in the hive July 1st are those that hatched from eggs deposited nine weeks before — that is, April 28th; and the youngest, those from eggs deposited five weeks before July 1st, or May 26th. So in order to have the largest number of field bees July 1st it is necessary that the queen should lay her full capacity of eggs from April 28th to May 26th. This means practically a full brood-nest already, April 28th, and one of sufficient size at that, and also a strong colony. Can that be done with a weak colony? Evidently not. Let us now begin the problem at the other end.

We will suppose that the bees are taken out April 1st. For the first few days only a few eggs will be laid. Probably a week or so is practically lost. Three weeks will elapse before any brood emerges, and the old bees will be dying all that time. The bees emerging during the first week following will not more than make up for the number dead since the colony was taken out; so it will be fully five weeks before the colony will begin to increase over what it was at the start — that is, about May 5th.

Now, is it not plain enough that, unless we have strong colonies at the beginning, it is impossible to have a very strong force of field bees at the opening of the honey-flow?

And what does that foolish talk about "useless consumers" we hear so often amount to? No, sir; these "consumers" repay a good deal more than their board when the following spring comes.

In using large hives and large colonies it is absolutely necessary that swarming should be controlled Unless this is done the large hives are a failure. If swarming occurs, neither the swarm nor the parent hive will be able to do more than regain its normal strength during that season, with all the chances that the process may be repeated the following year. In working for extracted honey it is easy to prevent swarming. All that is necessary is to have enough empty combs so that there will be ample room for the queen to lay in, and for storing the honey gathered. When this condition is fulfilled, only a very few swarms will issue, and these only in case of supersedure of queens. Even that could be prevented if the apiarist would take the trouble to renew the queens every two years.

In working for comb honey the case is a little different. By giving plenty of sections filled with foundation we can, under ordinary circumstances, obtain the same result as by giving empty combs, for it takes but little time for the bees to draw the foundation and get room to put in the honey coming from the field.

But it is not always so. In the first place the building of comb is done, in great part, during the night; and if we add too many supers the bees will not be able to maintain a temperature high enough in the supers to draw the foundation and complete the comb. This can be obviated to a great extent by outer cases and packing, inclosing not only the brood-nest but the supers, at least until the weather is warm enough to dispense with them. If, to economize the warmth, we give only a few sections, there will not be room enough to prevent the crowding of the brood-nest and the subsequent swarming.

But even with enough room and enough protection, in many localities the honey-flow

Digitized by Google

comes so suddenly and so abundantly that the brood-nest is necessarily clogged with honey, and swarming will ensue, at least with some colonies.

This, for years and years, was for me the *bete noire* of bee-keeping (Dr. Miller or R. L. Taylor can tell you the meaning of *bete noire*). But now I can control the swarming completely, and I have the choice between two (or, rather, three) different methods of doing it. The one I am going to advise is not the one I prefer, but it is on account of the peculiar conditions in which I am placed.

It is not necessary to prevent the actual swarming. The increase is what must be prevented; that is, we want to keep as many bees (or, rather, field bees) in each hive as we can possibly get. In the first place, have plenty of room — that is, of sections full of foundation — at least a few days before the honey-flow begins, and well protected by outer cases and packing, so as to insure plenty of room for the surplus, and sufficient warmth for comb-building during the night as well as during the day. Perhaps no swarms will issue, perhaps several. When a swarm issues, return it and kill or remove the queen. Put an entrance-guard before the hive, and let the young queens fight it out among themselves until only one is left, then remove the entrance-guard and let her out to mate. By that time the swarming-fever will be over.

The ordinary entrance-guard will not do. The drones in the hive will blockade it almost completely in trying to get out. I use queen-traps with a wire-cloth cover instead of tin. The light shining through the cloth attracts the drones in the upper story, and they come up almost at once, and are out of the way of the workers.

When the young queens emerge, swarming will be resumed; but the trap will prevent the queens from going with the swarms, and, of course, the swarms will return. In order to permit the young queens to go back to the hive it is necessary to remove one of the cones of the trap, or have a hole by the side of the cones. That hole can be provided with a slide, in order to close it when it is desired to catch the queen or the drones. In fact, all my traps are provided with such a hole and a wire-cloth cover. It will take but a few days to determine which queen will remain, for, when the swarm is out, the cells are left almost unguarded, and the young queens will come out during that time and settle the question, and also succeed in destroying the remaining cells.

What has become of the "admiration society"? The way the brethren have lately been whacking each other does not show very much admiration.

Knoxville, Tenn., Dec. 28, 1898.

[Yes, indeed, there is a difference between strong colonies. One may be numerically as strong as another; but one may contain much the larger force of bees of the right age to gather honey. In this question of large or small hives we should not, of course, overlook the matter of a large force of bees of the right age to gather honey. Doolittle has called attention to the importance of this, over and over again; and I do not know but we ought to reiterate it on the housetops.

Your practical conclusion, then, if I understand you, is this: That colonies should be as strong as possible the *fall before;* and to make up for a certain necessary loss in each colony in wintering, brood-rearing should begin early in the spring; and, if your figures are correct, the brood nest should be full by the 28th of April. Unfortunately that is too early for most northern States. We usually can not get our hives full much before the 15th of May here. As that would not leave us time enough to get the requisite force of working bees, I see no other way than that the colony should be very strong the fall before.

If the main honey-flow for most of the northern States would come on about the middle of July or the first of August, the problem of strong colonies would be more simple.

Your method of preventing swarming, or, rather, of keeping down increase, struck me very favorably at first. On second thought I fell to wondering if colonies with young queens *trying* to swarm, and being balked, wouldn't be inclined to fritter away valuable time. I have tried controlling swarming with perforated zinc; and my experience is that, when a colony is thwarted in its effort to carry out its natural instincts, it will sulk right in the midst of a honey-flow.—ED.]

LARGE HIVES.

Answer to the Editor's Question; Large Hives Necessary for Full Capacity of Good Queens.

BY C. P. DADANT.

Mr. Editor:—In your last comments you ask me whether I think the eight-frame hive is large enough to accommodate the breeding capacity of the average good queen. Emphatically I will say *no*. Neither do I think that the bee-keeper who makes any tests at all, no matter who he is or where he is, would answer the question in any other way. My experience is that about one-third of the queens are crowded in a ten frame brood-chamber, and that not over one-tenth of the colonies can be sufficiently accommodated with breeding-room in an eight-frame hive; while perhaps only two or three per cent of the healthy queens would find this hive too large.

Perhaps many people will disagree with me, who have never used any thing larger than an eight-frame hive, because they judge of the possible strength of a colony by the experience that one may get with such a hive. I beg leave to say that it is next to impossible to judge fairly of this question without first giving a trial to large brood-chambers the year round. It is useless to expect as populous a colony for either spring, summer, or winter, on an average, in a small hive, as in a large one. One might as well expect as large a colt from a pony as from a Norman mare. A greater cluster, a larger space, and a greater amount

Digitized by Google

of stores are bound to produce, with a queen to match, a more satisfactory colony.

There is one item which we have not considered. I have often heard it said that the size of the hive was a question of locality. Whether there is a point in this remains to be tested. It is quite possible that, in countries where the winter changes suddenly, and in a very few days to summer, the prolificness of queens may have but little chance of becoming fully developed. If such were the case it would indicate that northern countries could better adopt small hives than southern latitudes. But in my mind this is debatable. A strong large colony, wintered in a cellar, ever so far north, if safely wintered, ought to be able to develop the prolificness of its queen within a very short time; and as it takes only 22 days for the worker bee to hatch, a space of two or three months would be much more than ample to repopulate a hive to its utmost. Are there very many localities where the height of the honey-flow does not last beyond 60 to 90 days after the opening of spring.

I thank you for your kind words on my arguments. I have really said more on this subject than I expected, and I shall be very glad if the subject proves of any future use to the bee-keeping public at large. I can assure you, however, that, in any case, we are with the large hives ourselves, to stay.

One word aside from the subject of bee culture. I see on page 11 that you mention the question of government ownership of railroads. That has been one of my hobbies for a long time. Don't understand me as being one of those cranky paternalists who expect the government to take possession of every thing, and even grow our wheat for us, but I do believe that the only solution of the transportation question, which is now agitating the whole country, and the big centers more than the rest, lies in the *management* of public services by the public. We are daily brought to see that the transportation companies become more and more of a power, more and more of a tax, and there is no possible solution except the managing of the railroads, of the telegraphs, and of the telephones, by the same straight, economical, and wise method as that of the mail service. But we must first destroy the spoils system, or run the risk of seeing our beloved republic become corrupt, and sink, much in the way that the Greek and Roman republics did in past centuries.

[I indorse every word of the foregoing, even to the matter of government control of railroads; but this latter question is not debatable in GLEANINGS for such questions should be discussed in papers devoted to those subjects.—ED.]

E. C. M., Mass.—There is no reason why you can not keep bees near the sea. If you have had unusual loss it must be due to other causes than the weather; but when bees are kept near bodies of water they should be protected thoroughly from prevailing winds, either winter or summer.

RAMBLE 160.

Scott Valley; Among the Miners.

BY RAMBLER.

Scott Valley and its outlying arms, one of which is Oro Fino, is eminently a little world in itself. A rugged divide known as Indian Hill separates it from the conveniences of a railroad and modern civilization, and all supplies from the outside world have to be freighted over said divide in those great wagons and by many teams.

The alfalfa hay grown here is all fed out to the stock in the valley. If there are not cattle and horses enough in the valley to consume it they are driven in from other portions of the State, for it is cheaper to drive the cattle to the feed than to freight the hay to the cattle outside. The farmers grow their own wheat, and it is ground in their own roller mills at Fort Jones or at Etna.

The butter and cheese produced in the valley are largely consumed there, for the miners on every mountain stream are not producers of food, but their hard labor makes them large consumers, and a large amount of their shining metal gets indirectly into the hands of the farmer

It is hardly possible that a railroad will ever be built into the valley, for it is not large enough to produce a surplus of either population or products to sustain one; furthermore, the farmers are content with things as they are, and do not want a railroad; and, though they talk hard times, there are no people with whom I have come in contact who are so exempt from hard times.

In religious matters the people are in what might be termed a primitive backwoods condition. This is especially the case in Oro Fino. There is a little church, but no regular pastor. The preaching is given by ministers from Fort Jones or Etna. When I went there in April the services were held at three o'clock P. M., but the baseball game which came off every Sunday afternoon at the same hour so depleted the audience that the services were held during the rest of the baseball season on a weekday evening.

Dancing seemed to be the chief amusement of the young and middle aged, and a fine new dancing-hall was built during my sojourn, and the floor was kept well warmed with tripping feet.

The disregard for the Sabbath might come from the way the mines are run, for there is no Sabbath in a mine. The hydraulic giant is washing down the hillside night and day and every day of the seven; or if it is a quartz mill the stamps keep up their clamor in like manner.

This example set by the mines seemed to be contagious; and the work on the ranch, though eased up a little, goes right along with more or less vigor. On due occasions, however, these people are generous, even to prodigality, and we might easily scare up a Bret Harte angel in any of these mining-camps. Another redeeming feature with the Oro Fino people is the absence of the saloon. Topers

Digitized by Google

have to go to Fort Jones for their liquidation. So much, then, for Scott Valley and its people. Continuing the theme of bee-keeping I will call attention to the various bee-keepers in the valley, and their methods of management.

Jake Lewis, about a mile north of us, owned an apiary of about sixty colonies, all in Harbison hives. In early days, when Oro Fino was a more numerously populated town, he gathered the golden coin by fiddling for the miners; and instead of spending it, as many such men do, at the saloon or card table, he hoarded it, and now in his old age owns a large and fertile ranch. Uncle Jake had also, in his younger days, been a famous bear-hunter. Scores of bears and deer have fallen before his trusty rifle.

His method of securing honey was in those old-fashioned twelve-pound boxes. They were put on the hives early in the season, and taken off in the fall. As there was no glass in the ends of the boxes, whereby their interior condition could be examined, the fullness of the box was determined by rapping upon it with the knuckles. If it gave the proper sound it was removed.

Mr. Moxley, ex-sheriff of the county, and a wealthy farmer, also had a small apiary, with Harbison hives, and managed them in the same old-fashioned way, with the exception that he depended upon some outside aid to remove the honey. I had the pleasure of aiding him, and learned how to find a full box by the rapping method.

There were several other bee-keepers who managed their bees in this primitive way; and when I first took up my line of work in the valley I feared that so many bees in the immediate vicinity might make our honey-yield somewhat less; but I find that bees managed in that manner are not much hindrance. The bees were not worked to their highest capacity in honey production They fill their boxes early, and then swarm and loaf on the hives. Many swarms escape to the woods; they are in evidence in many trees. One of Uncle Jake's sons has developed into a bee-hunter, and has found and put his mark on over thirty bee-trees in the vicinity. The bee keeper who works his bees according to modern methods is the only one to fear in such a field. We had such bee-keepers in the valley. Well up at the south end, and out of range of our bees, I found Mr. Charles Oltman. Sixteen miles intervened between us; and upon my first visit to his apiary, about May 1, I found his bees at work in sections while the Levering bees were not making a living. The reason for this prosperity, I found, came from an abundance of wild cherry, willows, and locust, which were not so plentiful in our end of the valley. Mr. Oltman commenced the season with 140 colonies and increased to 160. His enthusiasm, however, for early honey was considerably subdued; for, during the interval between the blooming of these plants and alfalfa, there came a cool frosty term, and the bees consumed all of their early honey. Mr. Oltman is not discouraged over these little circumstances, but will enlarge his business another year by starting another apiary. His bees were in the L. hive, and, having heard much about large hives, he constructed a few having 16 frames. He seemed somewhat disgusted with the jumboes, from the fact the bees swarmed from them before they had filled all the frames.

Mr. Oltman is an enthusiastic gardener, and supplies the people far and near with his products from soil and hive. He is, furthermore, a good-looking bachelor, quite popular with the ladies, and is bound to be successful.

E. G. Gerbrich, at Fort Jones, in another portion of the valley, is another bee-keeper who will make his mark in honey production.

One bright Sunday morning I was sitting in the cabin door, when, slowly approaching across the lawn, I saw a young man and feeble old woman. He was tenderly supporting her upon his arm, restraining his energetic pace, and patiently conforming to her slow motion. I arose as they approached, and he introduced himself and then introduced his mother.

I immediately felt a deep respect for Mr. Gerbrich; for, of all the beautiful things told by tongue or pen, there is none more beautiful than the story of reciprocal love between parent and child; and here before me was a scene that angels love.

Mr. Gerbrich came to seek information respecting some points in bee culture, and Mr. Levering and I tried to give the information sought. The gentleman was something of an itinerant peddler through the scattered towns of California and Oregon; and after obtaining this, his first honey crop, he proposed to take honey with his other articles in trade, and in this way work up a home trade. He afterward told me that, had he depended upon honey alone, he could not have paid expenses. Honey, by most people, is considered a luxury, and only a small quantity is purchased at a time. He could, however, dispose of it to good advantage in connection with his other goods.

In one of the side canyons I found bee-keeper N. J. Mallow. He is the owner of about 100 colonies of bees in four apiaries. These are, of course, mere nucleus apiaries, which he hopes to increase to a hundred in each. He makes his calculations, however, with the proviso that we always used back east—I will do thus and so if they winter well. A burnt child dreads the fire, and Mr. M. has has had the experience of losing 89 colonies out of 90, and that proves that the wintering in Northern California is attended with disaster.

I have before stated that there is much honey-dew in this portion of California, and it seems to be more plentiful the further we penetrate into the mountains. Mr. Mallow gave me the information that the honey-dew found on the oak in the spring was whiter in quality than alfalfa honey, and of good quality, and will not granulate, even if kept two years. The honey-dew that is gathered in the fall is not so good, and I am inclined to think that his great loss of bees previously mentioned, was owing to too much of this kind of honey. The honey-dew in these mountain regions is so plentiful sometimes that hunters, in going

Digitized by Google

through a thicket, have their clothing thoroughly smeared and sticky from it; and it seems that bees work upon it with avidity when they are located far enough up the canyons to find it. Mr. Mallow uses the L. hive and system of management, and his honey-yields range all the way from 80 to 200 lbs. per colony of extracted honey. He sells all of his honey in the home market, delivering it to all towns and mining-camps within a radius of 25 miles. He is in accord with Mr. Doolittle about painting hives, and thinks his bees winter better where they are unpainted. The bees that gather honey in these apiaries are of the black race, and Mr. M. thinks they are good enough.

N. J. MALLOW AND SON.

Mr. M. has a fine ranch, and is thoroughly anchored to it with a family of wife and eight children. Huber is the name of the youngest, and I have not the least doubt that he will follow in the footsteps of his worthy father. I herewith present a picture of father and son.

H. S. M., N. Y.—The best way to make candy for bees is to mix sugar and honey into a stiff dough. Allow it to stand in a warm room for a day or so, and then mix in more sugar. These lumps of dough can be put on top of the frames for winter.

ANSWERS TO SEASONABLE QUESTIONS BY A. I. ROOT

FROM EARLY SPRING TO THE HONEY-FLOW.

Question.—As it will soon be time to get the bees out of the cellar and commence active operations looking toward the honey-harvest, will you please tell us in your department in GLEANINGS what should be done from early spring to the first flow of nectar which gives a surplus? This flow is usually from white clover in this section.

Answer.—As our questioner leads us to infer that he winters his bees in the cellar I will speak of setting from the cellar first. I follow a different plan in setting the bees out from what most apiarists do; and after trying all the plans for years which have been given I like this much better than any other:

Beginning with the first day in which bees which are outdoors gather any pollen, I commence at about 3 P. M. (if the mercury stands as high as 55 to 60° in the shade) to set out part of them, say from ten to fifteen colonies as the case may be, scattering them about the yard so that they will be as far apart as possible, and yet be within the limit of what space I wish the yard to occupy. This is done so that I need keep no track of where they formerly stood, and yet not have any mixing of bees, as would be the case were all set out at once or near together. Were all set out together, as most apiarists do this work, there will be more or less of colonies mixing up, unless each colony is set on the same stand they occupied the fall previous. To so set them requires a great deal of extra work, numbering hives, stands, etc., which is quite an inconvenience, and even then does not prevent some colonies getting far more than their share of bees.

To set out, I place my spring wheelbarrow and lighted smoker near the door of the bee-cellar, when I carefully open the door, quickly step in, and take the hive nearest the door, placing it on the wheelbarrow, when the door is immediately shut again. The bees in the hive now begin to realize that their long winter nap is at an end, and, if I took no precautions, they would be out of the hive and in the air, losing their home and stinging fearfully. To avoid this I now blow four or five puffs of smoke in at the entrance to keep them quiet, when the entrance is closed by laying a square stick in front of it, when the hive is wheeled and placed on the stand it is to occupy. The stick is now taken from the entrance, and the bees allowed to fly. This they will do as leisurely as they would had they not been disturbed at all, while, had not the smoke been given, they would have all piled out of the hive with a rush. This going out slowly is a great advantage to them in marking their location and repelling robbers. The next pleasant day more are set out in the same way, and at about the same time, scattering them about as before,

Digitized by Google

but paying no attention as to how near they come to those already out, for they are liable to mix only with those set out at the same time. I sometimes set out about the same number in the morning of a pleasant day, beginning to carry out as soon as the mercury reaches 45°, because, in this case, the bees must get through their thickest flight before those already out become very active, or else there is danger from robbing. In fact, those set out in the morning are much more liable to be robbed at best, for at this season of the year, on the days of the first flights of bees, they are always seeking for some weak colony to rob, because there is no nectar coming in from the fields; and bees having their first flight in the spring are not in condition to defend themselves from robbers, and for this reason I set out the most of them in the afternoon. Again, by this plan all the fatigue attending this work is overcome, as well as the mixing, keeping a record of where each hive stood, robbing, etc. As soon as set out, the next work is to see that all have plenty of stores; and if in a tight-bottomed hive, clean off the bottom-boards. As I use loose bottom-boards a clean bottom-board is placed on the wheelbarrow to set the hive on, so I do not have to disturb the bees afterward on this account. To find out about the honey or stores, the first cool morning go to the hive, take off the cover, and carefully raise the quilt or honey-board, and look for sealed honey along the top-bars of the frames. If plenty is seen they are all right till they are to be carefully looked after three weeks later. If little or none is seen, they must be fed; for if we are to reap good results from our bees they must have plenty of stores at this time of the year to encourage brood-rearing.

For feed at this time I prefer combs of sealed honey set in next the cluster, to any thing else. If none such can be had, we must feed sugar syrup, or liquid honey if we have it; but the feeding of liquid sweets thus early in the season entices many bees out to perish in unfavorable weather, and tends to promote robbing beyond any thing else. Three weeks later the hives are to be opened generally for the first time (unless we have some good cause for opening them before), the goodness of the queen looked after, the amount of stores on hand, and the brood nest reversed, by placing the two center frames of brood on the outside and the outside ones in the center. By so doing a gain is made, as all the older brood is in the central combs, which are generally filled nearly to the outside of the frames, while only small patches of eggs and larvæ are in the outer ones. This reversion causes the now inside frames to be filled entirely with brood in the shortest space of time, while there is little danger of chilling the brood in this way. At this time we should see to it that each colony has plenty of stores to last two or more weeks, for at no time should the bees feel that they must economize in honey, if brood-rearing is to go on rapidly, which it now must if we are to secure a good harvest of white honey.

In about ten days a frame of empty comb is to be inserted in the center of the brood-nest, or, better still, a frame of honey which has previously had the sealing to the cells broken. By removing this honey the bees are greatly stimulated, and brood-rearing accelerated. In eight or ten days more the brood-nest is again reversed, when, if all has worked well, there will be brood in all but the two outside combs, and generally some in these; but if not, there soon will be, owing to the full sheets of brood coming next to them. If honey is now coming in, the surplus arrangement is to be put on in a day or two; and it is better to put it on in a week or so, in any event. This, in brief, is my plan of management from the time of the setting of the bees out of the cellar till the honey-flow from clover. Now, if all of this is done properly and you have allowed your bees to care for themselves heretofore, you may want to get a "double gait" on yourself, as the darky wanted to catch the mule. A physician and his friend were standing on the street corner of a Virginia town when their attention was amusingly called toward an old darky belaboring the flanks of a mule in a vain persuasion to make him move on. At last the doctor was appealed to. "Say, boss, I'll give yo' five dollahs ef yo'll make dis hyer mule go."

With a sly wink, the physician opened his case and took out his hypodermic syringe, filled the needle with an acid, and sent it into the hindquarters of the mule. The effect was magical. With a wild plunge the mule went tearing down the street, with the darky after him, the bystanders roaring with laughter. A short time afterward the darky, dust-covered, approached again.

"Say, boss, how much was de wuff of dat stuff yo' done squht in dat mule?"

"Oh!" said the doctor, "about ten cents."

Down went the darky's hands in his jean pockets. He fished out two dimes.

"Hyeh, boss, am twenty cents. I wish yo'd squht twice as much of dat stuff into me, 'case I'se bound to catch dat mule."

SNOW OVER ENTRANCES; CLIPPING.

1. How long may snow cover the hive-entrance without injury to the bees?

2. What advantage is obtained by clipping a queen? Could not the attendant, who must be present to assist the flightless queen, just as easily handle the swarm and queen settled naturally together? A. W. CARSON.

Joplin, Mo.

[I do not know how long the entrance may be covered with snow. I know only this, that in our locality we never think of uncovering the entrances, and we have had the hives covered almost entirely for six weeks at a time. I should not be afraid to leave hives under the snow all winter. An occasional colony may be lost by snow melting and running into the

Digitized by Google

entrance and freezing, and that would be all. A colony in a double-walled hive, well packed, hive completely covered with snow, has all the ideal conditions for successful wintering outdoors.

2. Yes, the same attendant who takes care of the swarm can also look after the queen; but when a queen's wing is clipped it saves from a half to two-thirds of the labor of hiving swarms. When she is allowed to have her wings, and go with the bees, several things are liable to happen: First, bees, queen, and all absconding; second, the swarm clustering on some high limb; third, swarm with a queen circling about for a half or a whole hour, giving their owner a wild-goose chase.

The great advantage in having a clipped queen is this: A swarm goes forth, but the queen goes no further than a foot or two from the entrance. As soon as the bees discover they have no mother they will return to find her, which, if caged, is placed in front of another hive now on the old stand. The super that was on the old hive should be placed on the new one. The bees and queen enter the hive and begin work. There is no climbing, no chasing with spray-pump, and the work is performed easily and comfortably without excitement or worry.—ED.]

A PLEA FOR SEPARATORS TO REACH TO THE TOPS OF THE SECTIONS.

Mr. Editor:—From a Straw on page 870 it appears that Mr. Gathright, Dr. Miller, and yourself agree pretty well that separators should come ¼ inch below the tops of sections; and the editor adds, "Our fences for 1899 will be narrow enough to allow this space above and below." Additional weight is given to that Straw by the fact that the *American Bee Journal* reproduces it. Well, after all the weight and added weight given to that Straw, it appears to me that it should have a qualification go with it. By your permission, Mr. Editor, I will say that separators between sections having insets on the sections, or otherwise, of ⅛-inch only, may possibly work all right according to the arrangements in that Straw; but with those sections having ¼-inch inset the separators must come to the tops of the sections, or the * sections, as a rule, will be marred more or less with bulge or burr-comb, or both—that is, provided the bees are crowded sufficiently to secure well-filled and well-finished sections. But, what is a well-filled and well-finished section? There may be a world of difference of opinion on that question. My answer is, sections that are filled and capped against the wood nearly all the way around. Let's look at it for a short time. With one super placed upon another, both filled with sections having a ¼-inch inset, and separators ¼ inch below the tops of the sections, there will be spaces ½ inch x $\frac{3}{16}$ x 4 inches; or if the separators are ¼ inch above the bottoms of the sections there will be spaces $\frac{3}{16}$x¾x4 inches. Now, Mr. Editor, I want to say that, in almost all my experience, I have found that, when bees are crowded for room for stores, they will not fail to occupy such inviting spaces with comb and honey.

The troublesome experience I have had in that line has taught me a lesson that I am willing to impart to others at a much cheaper rate than it cost me.

Yes, I am aware that some few colonies will respect such arrangements; but they are the rare exceptions. Of course, such wide separators must have some sort of passageways through them. S. T. PETTIT.

Belmont, Ont., Can., Dec. 20, 1898.

*The term "section" properly applies to both the wood and the honey. The former is a section of wood and the latter is a section of honey

MORE ABOUT THE HYDE-SCHOLL SEPARATORS; REPLY TO CRITICISMS.

Mr. Root:—I believe that, in your criticisms of our separators, you overlooked some very important points. The main point is the greater free communication offered in the fence separator. It is claimed that this object is the one in view. If so you clearly see we have a greater amount of communication in our separators, also a better filling of the sections clear out to the wood; for where there is a cleat on the fence we have an opening in our separators. Thus you see it will not only give fuller sections but a larger amount of honey per colony; therefore this will overcome your objection of greater cost, ten times over. Even granting that the extra cost was 5 cts. per super, we claim that colonies where our separators are used will produce at least one-fourth more honey—at least, that is our experience. If so, then does not the extra cost sink into insignificance in comparison with the larger yield? Then, too, I think your criticisms of their frailty a little too strong. I can't help believing they are no worse to break up, etc., than the fence, because they come in contact only with the sections at the corners; but to those who wish something stronger I will say that The A. I. Root Co. will make these separators of tin also, as well as of wood; and when you get a tin separator you have one for years. Don't think, friends, that there is a patent on these separators. They are free to all. H. H. HYDE.

Hutto, Tex., Dec. 30, 1898.

WOOD-ZINC VS. PLAIN SHEET-ZINC HONEY-BOARDS.

By the way, that man Martin you have rambling over the country, telling big yarns, speaking of queen-excluding honey-boards, says in Nov. 15th GLEANINGS, "I make the wood-zinc board, for they are infinitely better" [my! what a term—*infinitely* better!] "and more durable than the plain zinc, for they do not get out of shape and into innumerable twists." Why isn't the man a little more modest, and say, "To *me* they seem much superior to the plain zinc boards"? I have been using them ten years; have 700 of them, and, after trying the wood-zinc, I decide that I would not take them as a gift, and be compelled to use them.

Yes, "get into innumerable twists" like a rubber hose-pipe, so you can never get them

Digitized by Google

straight. I never think of it as a trouble. I simply take hold of the end or corner of the zinc as I would a sheet of paper or a duck cloth on top of my hive, and peel it off—never a snap to jar the bees, nor care to prevent breaking the wooden frame. If curved, turn the convex side up, and the super set on straightens it out. My ten-year-old zincs are as good as my two-year-old ones.

Newhall, Cal. R. WILKIN.

UNFAIR COMPARISONS; HONEY IN SQUARE VS. TALL SECTIONS.

Figs. 10 and 11, on page 920 of GLEANINGS, are not honest diagraphical or pictorial comparisons of the objects represented. Looking at page 920, no doubt every person would unhesitatingly pronounce in favor of Fig. 11; but the appearance is deceptive. The Danzenbaker sections are given in your catalog as 4x5 inches, and you give four of them the whole width of the page, while four of the 4¼-inch sections have a margin on either side.

Then, speaking of these latter, you say that you had to hunt long and hard for them. Fig. 11 you do not mention there; they seem to be there to speak for themselves.

I have had slight opportunity to test the plain sections, on account of a poor honey season; but from my limited observation I fail to see the great promise of superiority. Still, time may decide that point.

H. O. VASSMER.

Excelsior Springs, Mo., Dec. 22.

[It may appear to you, friend V., that I meant to compare the two lots of honey, placing those in the old style at a disadvantage. That was not my intention. The two engravings were made months apart, and I had no thought, originally, of placing the two side by side. I would not have done so when I did had I not had a little extra room, and used it by inserting the cut shown in Fig. 11, for you will see no reference to it in the reading-matter on the same page or the next one. Of course, it is not fair to compare a 4 x 5 section with a 4¼, disparaging either; and if you will read carefully again what I said you will see that I did not do so. In referring to the honey in the old-style section I did say this: That it would "compare very favorably with any I have ever seen in plain sections"— a general statement; and on page 932, in speaking of the two lots of honey on the same page, I said that it (honey in old-style sections) "looks as nice as the other." So far as the actual specimens there shown are concerned, I plainly stated that one was as good as the other.

But perhaps you object to my statement (p. 932) wherein I said that Fig. 10 was better than the average of fancy in the old styles, and that Fig. 11 was very close to the common run of fancy in plain sections. If this is what you object to, then it is simply a matter of opinion or taste. I gave my opinion, right or wrong.

With regard to your observations on plain sections you admit that your experience is limited. If you bought honey in ton lots, as we do, I think you would have reason to believe that plain-section honey is prettier-looking than the other.

Of course, it is to be assumed that some of us who are enthusiastic in regard to these new things may paint them in too bright colors; and it is assumed, also, that those who are more conservative, and inclined to cling to the old, will *not* be apt to give the new goods all the credit rightly their due.—ED]

A PLEA FOR WIDE FRAMES AS AGAINST SUPERS.

I have been a well-pleased reader of your paper for some years, and especially A. I. R.'s writings. For more than a year I have wanted to ask why the old-style wide frames for sections were not the best of any thing for sections. I have used both them and Simplicity T-tin supers, and, to my notion, the wide frames are far ahead of the supers. I can get more and better filled and cleaner sections with them. If my bees winter well I shall want two or three hundred of them for another year (I have now about 450 of them), unless I find something better, which I very much doubt. Of course I want the best, and my opportunity for learning it is confined almost to the pages of GLEANINGS. It seems to me I must be away behind the times, as I notice they are hardly ever mentioned in your papers; and when they are, it is with such a hang-dog, disgusted, out-of date expression that I always want to ask why. I can not find them mentioned in your price list either.

Now, Mr. Editor, an answer to the above in your paper, or an article on the subject, would be very useful to me and, I think, of much value to a great many of your readers.

ALFRED ATHERTON.

Oramel, N. Y., Dec. 12, 1898.

[I am surprised that you prefer wide frames to T supers. The former have been almost entirely discarded, and why? In the first place (for I am talking about double-tier eight-section wide frames) the sections are in two tiers. If you put a hive or hive-body on top, containing wide frames, you must either give them a whole set of 48 sections, two tiers, or else put in a few wide frames and fill up the space with dummies. Objection No. 1, then, is that, with wide frames, one must give too much room at a time. Objection 2. They are not as easily filled or emptied as the T super. The last named can be emptied *en masse*. Objection 3. Wide frames are difficult to get out of hive-bodies. When they are once glued together in the hive it is sometimes a big job to get them out, to say nothing about removing the sections afterward. Objection 4. Wide frames are not as easily cleared of bees as the T supers, and, moreover, they require the use of tin separators. Wooden ones may be used, but not satisfactorily. The only advantage they have is that one, and perhaps two, may be put down in the brood-nest; but discolored honey is liable to be the result; and then, as a rule, a colony should have at least all the space it can have in an eight-frame hive for breeding purposes.

We ourselves prefer a single tier topless wide

Digitized by Google

frame or section-holder arrangement to a T super.—ED.]

THICKNESS OF TOP-BARS FOR SHALLOW FRAMES.

How is foundation fastened to the shallow extracting-frames, as they have no comb-guides? Would it not be better to make their top-bars the same as for the full depth?

JOHN B. ADDISON.

Washougal, Wash., Dec. 17.

[We advise every one to wire all his frames. Shallow extracting-frames can be wired horizontally or perpendicularly, according to the taste of the bee-keeper; but horizontal wiring is simpler and just as good. When frames are wired, the matter of fastening foundation is a simple one, providing one horizontal wire is put near the top-bar. If for any reason one does not care to wire, he can use the Hambaugh roller, especially designed for fastening foundation to top-bars flat on the under side.

Why do we not make top-bars for shallow frames thick? For the reason that the frames are already shallow, and the thickness of the top-bar consumes too much of the relative space for the comb in the frame. In shallow frames the top-bars do not need to be as thick as with deep ones, for the reason there is less load for the bar to support, and hence little or no sagging. One object of a thick top-bar is to prevent sagging. In order to keep down burr-combs it is absolutely necessary to preserve bee-spaces. The shallow bar with the deep frame will sag, and consequently the bee-space will be enlarged just enough to encourage the building of burr-combs.—ED.]

SIZE AND CONSTRUCTION OF HIVES LARGELY A MATTER OF LOCALITY.

Once I thought I was satisfied that I had the best hive with a hanging frame, ten to a hive and eight to a hive. The frames were 11 ½x15, or a square foot of comb. I used both sizes of these hives for 30 years. I like the ten-frame best, but seldom use more than eight combs in the time of gathering box honey. But for the past few years I have been using 100 or more hives with Hoffman frames, same size, only 2 inches lower, with equally good results. But they want more time and attention. I am also using 100 or more of the Quinby-Hetherington standing-frame hives, and I must say I do not wonder that so many differ in the size and kind of hive they use, for it depends on locality. It depends on whether we want extracted or box honey, or whether we want one all-purpose hive; and it depends very much on the amount of work and skillful attention we want to give our bees. What kind of hive is best for us to use? I should be glad to have uniform hives, but I fear we shall not get to this; but we should have uniform sections and shipping-cases for our honey. It would be to the interest of all. A hive is a good deal like a wagon. I once thought I wanted a spring wagon for all purposes to carry about 1500 lbs. I have found I was mistaken. I now use a wagon that will carry 1000 lbs.; and the next wagon will carry 2000 lbs. or more. The 1500-lb. wagon was either too small or too large, and so it is with a hive. I feel that, to carry out all of my plans, I must have two sizes of brood-combs; but want the hives all to take the same kind of surplus clamps for box honey. As I use two clamps to cover a hive, I prefer a hive so nearly square that it can be used either way, or that only one half of a hive may be used for brood, and one clamp cover them when desired.

I can appreciate Dadant's writing about his *big hive*, and can indorse the most he says. *But* I *don't like* his *large frames*. I used them in the first frame hive I ever used. They winter well, and give strong swarms, etc.; but to handle the frames all day it wants a strong man; and they are bad combs to break down while moving over our rough roads on a wagon. I run my bees from a wagon or a sleigh down a plank shute into a cellar. A man in the cellar takes care of them there while the team and man go to the yard after another load. I want hives and combs secure—no bees getting out until all are in the cellar.

Middleburgh, N. Y. N. D. WEST.

THE ROOT CO. AND THEIR NEW FIXINGS.

I see some one has called your attention to the thickness of the one-piece section. I should like it if sections were made ⅛ inch thick at least, or if we could get them so to order. I have wondered if the four-piece section is any thicker than the one-piece ones.

In regard to the fence, I should like to have the edges beveled off the posts; but the bevel should be very slight, as the posts are very nearly right as they are. I think the slats should be all of the same thickness, say ⅜ in. I do not think the space at top of fence should be more than a good bee-space—that is, not quite ¼ inch—say ⅙. I think that the very best fence could be made of three slats; but of course you could not work the material in quite so well. I saw cuts of the Hyde Scholl fences in the *Progressive*. I think they are a toy affair, fit only for men who want to keep bees for pleasure and not for profit. I am well pleased with the new fence, and would not go back to the old separators for any money.

A great deal has been said against your and every other supply-house for putting new fixings upon the market; and some of the great lights in bee-keeping have stood in the market-place to warn us youngsters not to purchase any new hives, fences, plain sections, etc.; or if we felt that we must buy, to do so sparingly—just as if the supply-dealers were crazy, and were trying to beat us out of our money. I sometimes wonder whose money we are using, and if some of us are not old enough to buy without all this guardianship. I for one am proud of The A. I. Root Co. for looking up new fixings in the bee-business; and I hope even the most conservative of the old bee-keepers will let us spend our money and try the new fixings. I am not afraid of new machines running men out of employment, nor am I afraid that I can get up honey in too attractive a shape for the market; and though

Digitized by Google

the Root Co. make a few mistakes, I know they mean well to us all.

Cuba, Kan., Dec. 12. WM. H. EAGERTY.

SWEET CLOVER; HOW TO GET RID OF IT, AND HOW TO TEACH COWS TO EAT IT.

Friend Root:—Mr. Lewis A. Sawyer seems to be at a loss to know what to do with his sweet clover. I sowed some around fence-corners and little odd places about my farm, not knowing it would grow so high. It grew to about 8 or 9 feet, right where it was in the way, so I cut it down, just as it was coming into bloom, and that was the last of it. It never troubled me any more.

I say yes, the cows can be taught to eat it. I just sprinkle a little salt water on it and they soon learn to eat it without the salt. My cows like it very well. EDW. SMITH.

Carpenter, Ill., Dec. 8.

SWEET CLOVER, AGAIN.

What kind of cattle does Mr. Sawyer have, anyhow? If I had a cow that would not eat sweet clover after I had kept her six months I would certainly dispose of her. I have sweet clover growing in my pasture, but I have as yet to see it bloom. The cattle keep it eaten down all the time. JAS. PRATT.

Cumminsville, Neb., Dec. 31.

A. F. H., Me.—Our bees are taxed like other property. As a rule, bees are taxable in nearly all the States of the Union.

J. C., Va.—If you will keep hybrids or Italians you will have little or no trouble with the moth-worms. Empty combs taken off in summer, and stored in hives, will usually be safe enough from the depredation of the wax-moth —especially so if the ordinary spider can get access to the combs. Combs previously subjected to freezing and shut in a tight box or in a hive, bee and moth tight, will be safe for any length of time.

G. W. M., Ohio.—Tarred roofing paper will in no way be offensive to the bees, especially when used as a lining to the building you speak of; but if you put the bees in an up-ground building it should be frost-proof. All things considered, if bees are to be wintered indoors it is better to put them in a cellar where the temperature can be kept somewhere about 45. Wintering in up-ground buildings is not as successfully practiced as in buildings partly or wholly under ground.

J. L., Tasmania.—I note what you say in the matter of foul brood. In regard to p. 587 you got a wrong impression, probably because the language is not very explicit. I did not mean to convey the impression that foul brood would be sure to revisit an apiary *after* hives have been scalded and bees treated. What I did mean to say was that the disease would surely return unless treatment and disinfectants were administered. I send you our foul-brood pamphlet, and from this it appears that it may not be necessary to boil hives. This is probable; but some authorities think that hives and utensils should be disinfected also. However, if you follow the treatment in the pamphlet you will probably not have very much trouble from the disease reappearing in your yards.

H. C. A., Wis.—Your method of using a large winter case, to accommodate ten or a dozen hives, is used by some; but while first cost of this method of packing may be cheaper it means a good deal of labor. The majority of bee-keepers prefer, if they winter outdoors, regular chaff hives, because they are always ready for winter and are cooler in summer. It is not necessary to use shade-boards or shade-trees with double-wall hives, and some prefer them just for the protection they afford in summer. In regard to feeders, we have for years sold butter-dishes or trays just for this very purpose. One does not need to purchase the more expensive Miller or Boardman feeder, each of which has special features peculiar to itself. Both of them save labor, and with either of them the feeding can be done, usually, at one opening of the hive. As to the Hill device, corncobs or any thing of that sort may be used instead, but they are not as convenient, nor quite so good.

F. A. K., Wis.—I note that you say your bees are dying in your bee-cellar at the rate of three quarts per week. Considering the fact that you have 38 colonies in the cellar this may not necessarily be bad; and yet at the beginning or at least the middle of the winter this is a rather heavier loss than there should be under favorable conditions. One who is used to wintering outdoors, and then winters inside, is often surprised at the number of dead bees there will be found on a cellar bottom in a few weeks' time, and he is likely to imagine that all his bees will die thus before the spring, when the facts are, even under the best conditions, that old bees are pretty sure to come out and die on the cellar bottom, and there may be an accumulation of an inch or so all over the floor, the number depending, of course, upon the number of colonies in the cellar. The loss in this way should be light, comparatively, during the early part of the winter, and increase as the winter advances. I suspect, then, that your loss is greater than it should be. Your loss may be occasioned by the fact that the cellar is not absolutely dark; second, that the hives contain stores of inferior quality; third, an undue amount of dampness; fourth, temperature (38°) is low, if any thing—45 is better. The nearer you can keep it at that point the better will be the results. If a cellar is dark, ordinarily dry, and stores are of good quality, then I should attribute your loss to the low temperature. To bring it higher I would bank the cellar up more or put more colonies in. Fifth, there should be a slight amount of ventilation. This may be secured by means of a stove or by opening and closing doors at night when not too cold outside.

Digitized by Google

ANSWERS BY DR. MILLER.

A list of questions has been sent me by a correspondent, J. W. C. G., Illinois, which I will here answer in order; and, for the sake of saving space, I will not repeat the questions.

1. My opinion of the statement of W. W. Somerford, that the ten-frame Dovetailed is the best hive in the world, is that it is all right for some cases, but not for all. For some a larger hive is needed. Two stories of eight frames each may be better, but require more engineering. For some a hive with larger frames may be better. For one who pays almost no attention to his bees the year round, the ten-frame is better than the eight-frame. And something larger may be still better. But I don't set a very high estimate on my opinion, and it's liable to change at any time.

2. I think any one who knows how to use T supers properly, and who hasn't some special facility in handling section-holders that I never learned, will decidedly prefer T supers.

3. I use on my supers the regular hive-cover that I use on the hive when no super is on.

4. On my old hives I use Heddon slat honey-board under supers. On my newer hives, with thick and wide top-bars, I use no honey-board unless for some special purpose I want to bar the passage of the queen, in which case I use a wood-zinc queen-excluder. But it isn't needed to keep the queen from entering the supers.

5. I put full sheets of foundation in brood-frames and in sections. In brood-frames that means the foundation touches the wood on all sides, being slid into a saw-kerf in the top-bar, and between the two split halves of the bottom-bar, having little sticks of wood instead of wires. The sticks are $\frac{1}{16}$ inch square, running perpendicularly, first boiled in beeswax, and pressed into the foundation while hot. A ⅝-inch bottom starter is used in sections.

6. I use eight-frame hives, most of them of old pattern, having frames varying from the regular Langstroth just enough to be a nuisance. I'm working into eight-frame Dovetails just as fast as I can.

7. I run for comb honey, using a T super 12⅛ inches wide inside, and long enough for four sections. That makes it take easily 24 sections of popular size.

8. I use separators always. Some do without them; but the character of the honey-flow, or else ignorance on my part, makes separators a necessity with me.

9. My T tins are loose.

10. I winter in cellar. My experiments in wintering on summer stands have been rather expensive; but it is quite possible that, if I knew enough, that might be the better way.

11. All my queens are clipped as soon as it is convenient for me to clip them after they begin laying.

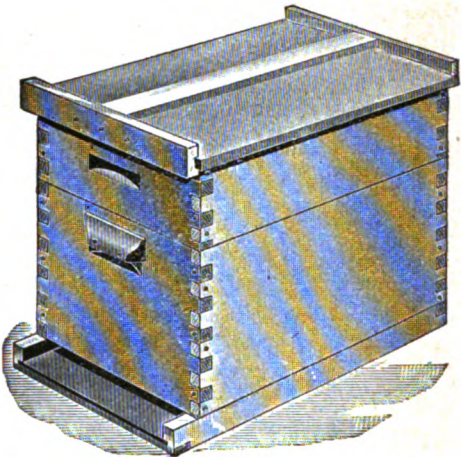
12 If I hived a natural swarm I should put it on the old stand, moving the old, setting the mother colony beside it, and taking the mother colony to a new place in about a week.

13. Yes, I am fairly entitled to the title "M. D.," having worked hard for one that I received from the University of Michigan a good many years ago But what between advancement made in the science of medicine as well as in apiculture, and forgetting for want of practice some of the old-fashioned things I did learn, I wouldn't urge your sending for me in case of dangerous illness if you have a reliable family physician within a hundred miles. DR. C. C. MILLER.

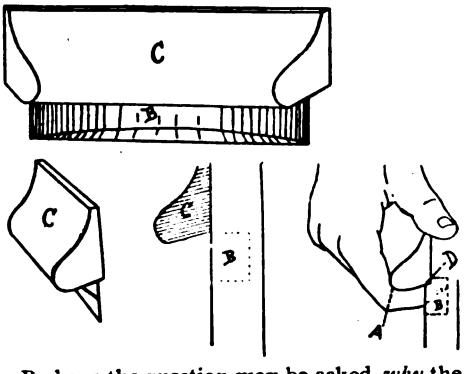
TRADE NOTES
BY E. R. ROOT.

HAND-HOLE CLEATS FOR HIVES.

A short time ago I promised to show you something in the line of cleats in combination with a hand-hole to lift hives. We have finally got them perfected—or at least so they suit



us, and now offer them in all our Dovetailed-hive combinations. They are nothing more nor less than short pieces of molding beveled at each end, and nailed so as to come directly over the top edges of the hand-holes, as shown above. The following illustrations show a little more of the detail.



Perhaps the question may be asked *why* the hand-hole cleat alone would not be sufficient. It is much more convenient than the hand-

Digitized by Google

hole alone; and the two in combination are far better than either alone. When one tries to lift a fifty-pound hive by hand-holes, his fingers can get a grip only *at the mere tips, on a sharp edge*, as at D Such a hold is a severe strain on, if not painful to, the ends of the fingers; and one does not feel that he cares to lift very many hives in this way; but if he can get the heft of the weight on the *middle joints* of the fingers, as at A, and on a rounding edge, he can lift all that his back will stand. With an ordinary cleat one has to lift the hive by the first joint of the fingers, and it is only a little better than the hand-hole; but when the hive is recessed back of the cleat a little he has an opportunity to bring the heft of the load where he can handle it to advantage—at the point A.

Hand-hole cleats will *not* be supplied for supers, as these can usually be handled by the holes alone with no great inconvenience.

We sell these cleats separately when called for, at 75 cts. per 100, or $6.00 per 1000. They can be attached to hives already in use; and where they are to be moved to out-yards, or handled very much, these cleats are a great convenience, and worth many times their cost.

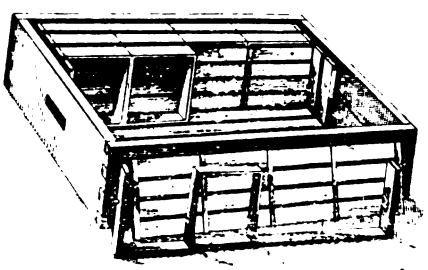
Dr. Miller wants his cleats to go *clear across* the hive. If there are those who prefer to have them so, we can supply their hives with such, but the price (of the cleats) will be twice as much as for the short ones, and will be supplied only from the factory, as our dealers will keep only regular goods.

We have a lot of other little comforts in our 1899 hive, and in our next we will tell something of these also. Our new spring compression for supers excites the admiration of all.

THE DANZENBAKER SUPER.

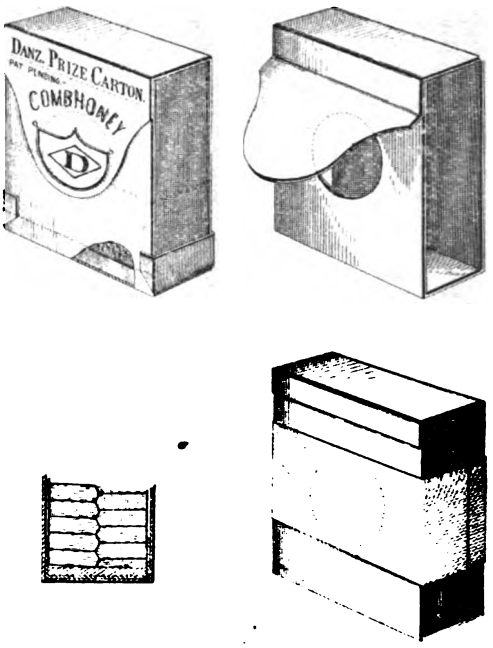
BY F. DANZENBAKER.

The Danzenbaker super shown here is furnished with hanging section-holders having end and bottom bars the same width as the sections, with free bee-ways their entire length, forming a perfect divisible honey-board that holds the sections firmly together



true and square, and protects their under side from propolis or burr-combs. Each holder is provided with headed iron pins driven through the end-bars from the inner side, securing uniformity in length of bearing on the solid supporting cleats, maintaining a correct bee-space between stories. The fences are supported in like manner, and provide an open beeway at both top and bottom between each two rows of sections (which is secured by patents issued and pending). One of these fences is used as the follower back of the sections, held securely in place by a curved wire spring set in the side of the super.

The plain sections are seen in position on the holders. The thickness of the sections and fence cleats together affords the same honey-space as is in the 7-to-the-foot sections with plain separators; and when filled with honey they pack closely in the shipping-cases, saving from 10 to 20 per cent in cost and weight of cases and crates in shipping the honey to market.



DANZENBAKER PRIZE CARTON.

Progressive comb-honey producers desirous of promoting sales by doing things just right are putting their best sections into neat attractive cartons, ready to hand to the customer without wrapping, yet secure to carry safely in the pocket, satchel, or market-basket, as other articles are put up for domestic use. These cartons can be made artistic if desired, giving the name of the producer or seller, and kind of honey, while the quality is shown by raising the cover over the opening without removing the sections.

They are made ready to use without folding, ready to open only, and put in the section, which is kept secure in place by a string or rubber band.

They are made to match the sections and fit in the same shipping-cases when filled with honey, and will protect the cappings of all, as there is no space to tilt over in case any should be jarred loose by rough handling in shipping.

They will pay for themselves, insuring prompt sales and better prices.

Washington, D. C.

Digitized by Google

EIGHT extra pages.

NEARLY every one of our journals has some special features. One, for instance, will be conspicuous for illustrations; another for some special article; another for the discussion of some particular subject, and so on. This number has some of the best articles we have ever published, from men of intelligence and large experience—some of the brightest and best bee-keepers we have.

IT is not to be presumed that *every* thing published in GLEANINGS, or in any other journal, in fact, will be interesting to every reader alike. Probably the majority of subscribers glance over the pages, and read that in which they are particularly interested, and skip the rest. The veterans, for instance, probably do not care for instructions to beginners, and the latter have no interest in the discussion where the experts disagree. As it is, GLEANINGS tries to give a general variety—indeed, to cover the whole range of apicultural matter. If there is any subject one or more wish to have brought up, be free to ask for it. If it is of general interest I'll bring it up.

THE GOVERNMENT AND APIS DORSATA.

ONE of our subscribers, Mr. Bion Walbridge, of Stony Fork, Pa., wrote to his Representative for reliable information in reference to the government importing *Apis dorsata* from the Philippines, as they are so currently talked of in the papers. Well, it seems that this request found its way finally to Entomologist Howard, who replies:

Mr. Bion Walbridge:—Your request of December 12, through the Hon. Horace B Packer, for bees from the Philippine Islands, has been referred by the Honorable Secretary of Agriculture to this Division for reply. The newspaper report which you mention was unauthorized. The Department has not, as yet, undertaken the importation of bees from the Philippines. Should they be obtained, however, they would first be carefully tested before any general distribution would be decided upon. If then the latter course should be deemed advisable due notice would be given to those interested, and your application would be favorably considered by the Department.

L. O. HOWARD.
Entomologist.

IMPROVEMENTS IN OUR EXCHANGES.

ABOUT Christmas time, or following New Year's day, we usually see quite a brightening in all the periodicals, and bee-journals are no exception. Prominent among those for 1899 that show new blood and new life are the *American Bee Journal* and the *American Bee-keeper*—both representatives of the American idea, viz., progress and push. The Old Reliable comes out with a new title-page, new body type (just like ours, by way of compliment), and one can not fail to note an added freshness and vigor throughout the whole journal. It is the oldest of all of the bee-papers on this side of the Atlantic. It is a weekly, and always on time—the only one, I believe, that can really claim this distinction.

Some of what I have said relative to the *American Bee Journal* will apply equally well to the *American Bee-keeper*. It is edited by Mr. Harry E. Hill, a practical bee-keeper whose experience, probably, has been more varied than that of any other apicultural editor in our ranks. He is bound to make his paper jump forward into prominence. I have often admired his clean-cut practical editorials.

ARE SUNSHINE AND AIR FOES TO GERM LIFE?

I AM asked by L. G., in a French journal entitled *Le Rucher Belge*, whether exposure to air and sun will kill spores of foul brood. I do not know from experience, and am hardly scientist enough to follow out an investigation. But there are reputable scientists who say that such exposure does kill the germs; but if it requires two hours and a half *boiling* to do it, how many years of air and sunshine will it take to do the same work? I must confess that I myself would not care to place too much reliance on the simple agencies of these two elements. Of course, I am aware of the fact that the rays of old Sol and the stuff we breathe are foes to most forms of germ life; that is the reason why it is so necessary to let sunshine and fresh air into sleeping-rooms, and why rooms kept dark to prevent nice carpets from fading, or shut up tight to keep out the dust and noise from the street, are not apt to be healthy places for persons to live in or to sleep in for any great length of time.

DOOLITTLE ON BURR-COMBS; CHANGING FRONT.

IN our new department, "Pickings from Our Neighbors' Fields," it will be noticed that G. M. Doolittle is a champion of wide and thick top-bars, for the reason that they do away almost entirely with the burr-comb nuisance, for he says, "In many of my hives not a burr-comb appears from one season's end to another." I was a little surprised when I read this, for, if I remember rightly, Mr. Doolittle was once in favor of these same burr-combs, and that he wanted them for "ladders"—that is, for a handy way of entering the supers. The reason I remember it is that, when I began to champion these wide and thick top-bars, he championed the burr-combs. Well, I am not going to say, "I told you so," but, as I said before, it shows one's candor—nay, even more, his progress—when he is willing to go back on old tenets and adopt ideas advanced by opponents.

"HONEY POPCORN CRISPS, FIVE CENTS."

WHEN I called on Mr W. A. Selser, the Philadelphia honey-man, he showed me some of the sights in and about the city, reference to which has already been made in these columns. On one of these excursions out of the city into the suburbs we stopped at one of the leading pleasure-resorts, the name of which

Digitized by Google

has gone from me; but no matter. At this resort we visited a *honey*-popcorn stand where the proprietors make a specialty of honey popcorn for five cents a package.

We bought some of the crisps, and, sure enough, they had an unmistakable honey flavor; and as a delightful, toothsome confectionery they can't be excelled. That pure honey as a sweetener is used is evidenced by the fact that Mr. Selser furnishes the honey, and lots of it.

Elsewhere I show a snapshot that I took of the pavilion. Mr. Selser stands at the left, with his hand on the counter, on which are piled the crisps. That the place does a large business is shown by its general appearance of permanence, and the fact that there are two or three clerks there all the time. It has a modern cash-register; indeed, one of the clerks is just making out the change to hand back to Mr. Selser.

The crisps are, of course, made right in the building, and the enormous popper is shown at the right.

I suggested to Mr. Selser that it would pay him to sell these honey crisps; but he thought the demand would hardly be enough to warrant him in advertising them.

I do not know but it would almost pay us to catalog some of the foods prepared with honey; for instance, a good honey caramel, honey cakes, honey jumbles, honey popcorn crisps—all these and more might have a considerable demand. If the sale of them accomplished nothing more it would encourage the consumption of honey of darker grades by the baker and confectioner.

HONEY-LEAFLET NOT A SUCCESS AS A HONEY-SELLER.

A SHORT time ago I asked through these columns whether the honey-leaflets when freely distributed helped the sale of honey in the local markets. I have received quite a number of responses, and nearly all confess their surprise at the fact that the leaflets seem to have no effect one way or the other. One writer says people are so used to having circulars in the line of patent-medicine advertisements shoved under their noses and on their porches that they pay no attention to them; and, besides, some people do not like to have their premises littered up with such stuff.

There is just one correspondent out of the whole number who said he found these leaflets to be of material aid in disposing of his honey crop. But he usually hands one of the leaflets direct to a consumer, calling his attention to the interesting matter that he will find about honey and the honey recipes in the back part of it.

It occurs to me that the whole trouble is we have gotten the leaflets up in too cheap a form. Something a little more expensive, perhaps, printed on a fine grade of paper, bound in a tinted cover, and perhaps decorated in colors, with, say, some striking and interesting pictures showing the art of bee-keeping, and how honey is produced, might attract the attention of the consumer and cause him to read it through. But, of course, such a leaflet, or booklet, as it would have to be in that case, would be considerably more expensive; and the average bee-keeper could not afford to give away large numbers of them.

Now, then, dear reader, what are *your* views? Should the leaflet be more expensive, and distributed to only a few consumers? or perhaps, better still, left only with retailers and wholesalers? or is the leaflet, such as we have been sending out, all right? May be it would be impossible to print all the suggestions that come in, but I should be glad to get expressions, and will then formulate them into a general statement, as I have done this time.

OUR NEW DEPARTMENT.

OUR readers will notice a new department, entitled "Pickings from Our Neighbors' Fields," immediately following Stray Straws. This department is to be edited by my old friend and co-worker, "Stenog" as he will sign himself, but who is none other than W. P. Root, who is at this very moment taking down in pot-hooks some of my offhand sentences. Mr. Root's writings have before appeared in these colums in a series of articles reviewing some of the old literature on bees, running through most of the year 1893. Since that he has had but little to say himself in our columns, although you may be sure he has carefully scrutinized every word and every punctuation-mark that has appeared in this journal, and in some of the others. Mr. Root has a keen sense of the true and beautiful, the good and the useful, and particularly of the dry and the humorous. And in his "Pickings" he is to have free swing except that he is not to fling flings or sling mud. He is to thrash over the gleanings from our exchanges, and then re-dish them up properly seasoned and spiced. Well, I'll let him now speak for himself:

At the outset, I deem it but fair to myself to state that it is not with the feelings of a novice that I am attempting this semi monthly spread of a new table. For a good many years I have had exclusive control of one department in GLEANINGS, although it was not signed. No matter how crowded, the editor has never asked me to cut it down. From start to finish it has been all my own, even to setting the type. The grammar has never been called in question, either by Mr. Taylor or Mr. Thompson. I refer to the index—that indispensable adjunct to all good journals. But in taking charge of this one, the personal factor is necessarily larger. The design of it is well described just above; namely, to state in a very concise manner the conclusions of writers in other bee-journals, on some subjects.

A private letter leads me to state that if any of the readers of GLEANINGS wish to ask any questions relative to the mechanical part of writing for a journal I shall be glad to answer such; and even without such questions, probably a good many suggestions will be made at this end of the line relative to the proper preparation of copy for printers' use.

I rather like to give advice well sugar-coated, as it is more apt to be taken in that form. The "traditions of the elders" rest very lightly on me, and hence I presume I shall have to state things in my own way instead of conforming to any cast-iron rules. But the value of this department will be tested by time, and not by any promises I can now make. It involves a good deal of reading in English, certainly, and will probably include a few heads of grain gathered in German, French, and Spanish fields, although Dr. Miller is now attending quite faithfully to that kind of work. STENOG.

Digitized by Google

This poor man cried, and the Lord heard him, and saved him out of all his troubles.—PSALM 34:6.

Dear fellow-travelers, I want to talk a little about the grip this morning; and if you have had it I think you will be interested in what I have to say. I told you in our last issue about getting a crick in my back, and catching cold. Well, by being careful, and staying indoors, I got over it in the course of two weeks, or thought I had; but after I began to get around a little, something—at least it *seemed* as if something—took hold of me by the back of my neck and held on with quite a "grip." I tried to stay indoors, but peculiar circumstances rendered it necessary that I should go out just a little; and then I began to have toothache, earache, and sore throat all at once. You know, without my telling you, whenever I am in trouble I begin to ask God for guidance; or, if you choose, I begin to inquire what God would have me do under certain circumstances. A recent writer of great power has expressed it, "What would Jesus do?" A traveling man who came quite a distance to see me on business remarked that he also had the grip. He said he had it a great deal of the time, but still he kept traveling, and attending to business. Said I:

"Why, how do you manage to travel and attend to business when you have the grip?"

"Oh! I keep driving it off with quinine."

"But quinine does not seem to answer with me. Other people find relief by taking quinine, and I often try it because others use it so freely; but it does not seem to work well with me."

"Oh! that is true. It won't work with some people. But I will tell you what to do. You take some whisky with it. 'Quinine and whisky.' That is what I take right along. It is the only thing that keeps me up."

I had taken a good look at my companion before, and had been fearing he was an intemperate man. There was not time, and I did not think it worth while, to tell him that I considered the remedy worse than the disease; but it kept going through my mind the rest of the day—*quinine and whisky*. I wonder how many doctors there are in this land of ours who tell their patients to take quinine and whisky. Grip is doing a great deal of harm, no doubt. An old doctor book, printed before grip was known, tells me that influenza is a peculiar disease that afflicts whole cities; and of recent years it has been *still more* of a city and town epidemic. It breaks up schools and cripples factories; it keeps physicians running until they are worn out; it causes an untold amount of pain and suffering, and sends many invalids and old people to their graves; but, oh dear! grip is not a circumstance—not a drop in the bucket, compared with the ravages of whisky. Why! I think I am safe in saying that all the epidemics and plagues that ever troubled mankind are as nothing compared with intemperance. A man may die of smallpox, cholera, or yellow fever, and be an honest man and a Christian; but when he dies of whisky it is not only a lost body but a *lost soul*.

When I was inquiring what God would have me do for the earache and toothache together the answer came very decidedly that whisky above all things was what the great Father would not have his people use. While I was kept at home with my face over the hot radiator, trying to get relief from pain, I prayed over this matter a good deal; and right during my sufferings one of the clerks brought over to the house a bundle of papers and the letter I submit to you below:

Dear Mr. Root:—I take the liberty of addressing you because I feel led of the Spirit to do so. I have been a reader of GLEANINGS for a number of years through the kindness of a friend who lent them to me, and for about two years just past I have been a regular subscriber; and dear old GLEANINGS is a very much loved and honored member of our family. I have loved very much to follow you through your many experiences in the Christian warfare as I find it recorded from time to time in Notes of Travel and Our Homes. If I can find words to express my feelings toward you I think I shall come the nearest to it by saying you have seemed very much like a very dear elder brother who has advised, comforted, and helped me many times when in sore perplexity; but for a long time I have wished you knew God's way of healing; what his will is concerning these things. I will not attempt to explain, but will leave that to the leading of the Spirit and God's teaching through his servant, Dr. Dowie. If you have any doubts or prejudices in regard to these things, for Jesus' sake and the sake of sin-stricken suffering humanity, ask God to help you to lay them all aside, and seek diligently for the *whole* truth until it is opened up to you in all its grandeur, beauty, and power.

I mail to you three copies of a paper printed in Chicago, in which you will find the true bread of life broken to the world. These are old numbers of the papers, but I send them to you because they have done a mighty work since they were published, and I feel that the Spirit of God especially accompanies them. I have thought many times what a power for God our beloved Bro. Root would be if he only knew God's way of healing; and I send these papers to you with a hope and prayer that, by his Spirit, he will lead you fully into the blessed truth that God sent the Great Physician that we might receive through him healing for our wounded bodies as well as soul and spirit; that he came indeed and in truth that we might have life, and that we might have it more abundantly

Your brother in Christ,

Edinburg, O., Jan. 12. G. G. NORTHRUP.

The papers that came with the letter were Leaves of Healing, from Dr. Dowie's establishment in Chicago. I have read these Leaves of Healing for a long time. I have also looked over Dr. Dowie's establishment while passing along the streets while in Chicago. There is certainly very much that is good in the Leaves of Healing; yes, there are some of the grandest truths, expressed with wonderful force, and I am glad that such a man as Dr. Dowie has been raised up to deal terrible blows at existing evils; but I do think that he makes some grievous mistakes; and, for that matter, is it not true that all of our great teachers, especially those who seem to have great gifts along certain lines, make more or less mistakes?

Let me thank the dear brother who sends the above kind letter, before I go any further. And then let me protest against one expression that Dr. Dowie uses quite often in his denunciations. It is this: "Doctors, drugs, and devils." No doubt there are doctors who *are*

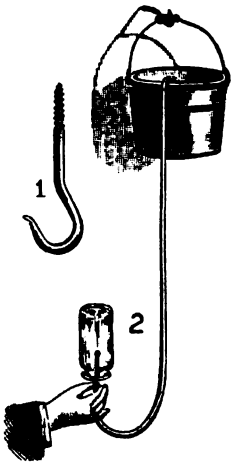
Digitized by Google

veritable devils. I do not know but I can go with Dr. Dowie and use that term for those who deliberately recommend their patients to use quinine and whisky for the grip. Perhaps they do not realize it nor mean to do it; but they are certainly doing the Devil's work when they tell a man to use such a remedy as that whenever the grip troubles him. Some druggists may be in the Devil's service—those, for instance, that stand behind the sign of a drugstore and then make their money by selling whisky indiscriminately; but God forbid that we should in this sweeping way call *all* druggists and *all* doctors "devils." Dr. Dowie makes some other serious mistakes in his vehement denunciation. In one of his articles one might almost think he classes the average minister of the gospel with the trio mentioned above; but I sincerely hope he does not mean that.

After reading the above exceedingly kind and Christianlike letter, and reading the Leaves of Healing sent me at an opportune moment, I began praying earnestly for wisdom in regard to this matter of remedies, not alone that my own pain and distress might be stopped, but that I might guide and direct others. I had been using powerful liniments to stop my toothache, and had got along pretty well; but the malady increased more and more. The liniment was needed on my face and in my mouth. I used these powerful drugs until pieces of skin the size of a finger-nail came off from the inside of my mouth near the gums. I also used the liniment in and around my ear, and I began wondering whether it was the intention of the great Father above that we should depend on things of this kind for relief. While thinking over the matter I went into a warm closet near by and knelt down and prayed very earnestly, not only for relief, but for wisdom that I might direct others.* I remember wondering, as I rose to my feet, if it were possible some strange thing might happen so this pain would be suddenly taken away; and my face began to brighten, even amid the pain, as a glimmer of faith began to creep into my heart. Then I remembered the picture I give you above; and it occurred to me that some of the readers of GLEANINGS said, when I gave the same illustration years ago, that this hot-water apparatus was just the thing for cleansing the nostrils and ears when one had ague in the face or cold and catarrh in the head.

* Some of the friends who read GLEANINGS express wonder and surprise that I should speak thus boldly right out in print about kneeling in my closet, and praying for wisdom or about other things that trouble me. I know this is unusual; and were it not for my great desire to help others along the same line, I would not do it; in fact, I often hesitate. But, dear friend, if I should tell you of going into a doctor's office, and having a long earnest talk with him, nobody would think it strange; and why should we be backward or embarrassed in telling about consulting the Great Physician, who holds even the winds and the waves in the hollow of his hand? Again, there are great sanitariums that have been built up on this very matter of faith cure, or relief that has come through prayer. There are so many different organizations of this kind just now that such proceedings need not occasion surprise or remark. The point I would make is that God both hears and heals in the humblest home as well as in an establishment like Zion's Tabernacle in Chicago.

APPARATUS FOR CLEANSING THE NOSTRILS, THROAT, AND EARS WITH HOT WATER.



The materials were right at hand, and in a few minutes I was passing a stream of hot water—just as hot as it could be borne—into my nostrils, first one side and then the other. The effect of the warmth in getting the water clear through the nostrils into the throat began to make me sneeze; and with the sneezing came a discharge that had accumulated in the nostrils and near the passages to the ear; and, sure enough, the pain was gone (almost as if by miracle), and it was done, too, without drugs or liniment of any sort—just hot water and nothing else.* Of course, this was only temporary relief; but it was ever so much better than the strong liniment. I got along in this way quite comfortably until the malady became so much worse that the water treatment gave relief for only a very short period. I managed to get through the night, and got a little sleep, but in the morning things seemed to be rather worse. Once more I went into the closet, and prayed. This time there seemed to be no answer to the prayer. While considering the matter I remembered that the prophet Elijah, when he told the servant to go up and look toward the sea, was told by the servant that there was nothing. Then the prophet said, "Go again." And it was not till he had gone *seven* times that he saw a little cloud appear. I then went into my closet, and prayed again. When I arose I had the same experience as before. There was a glimmer of faith that something was coming; and then it occurred to me that the little stream of water through the nostrils was insufficient, and if I could place the whole side of my head in very warm water the outside application of heat and moisture would aid the other. I thought of the vapor baths that are so much advertised nowadays, but none was handy. In a minute I procured a wash-basin, and some water as hot as my face would stand it without blistering, and placed it on the edge of the cook-stove, where the heat would be kept up to the proper point, and in a few minutes I was again free from pain. No more liniment or toothache cures were used; but it was three or four days before the trouble began to let up. The suffering was greatest in the night, notwithstanding rubber

* At the present time, nearly two weeks since the above occurred, I have occasional touches of the earache; but this is banished almost instantly by simply cleansing the nostrils with hot water as indicated above; and one application gives me relief for several hours, and sometimes for a whole day. This comes right in line, as you notice, with my old hobby of doctoring without medicine. Pure air, pure water, and wholesome food—has anybody yet discovered how much these may do to get us well and *keep* us well?

Digitized by Google

bags filled with hot water, and hot soapstones, etc. My sleep was feverish, and disturbed by troublesome dreams. Of course, I called in our family physician for advice. He gave me some medicinal remedies, but said he thought the trouble all came from a certain tooth. Then our dentist was called; but he said it was *grip* and *not* the tooth. My gums were *all* swollen on that side, and the teeth were all gold-capped, and it was going to be an exceedly difficult and distressing matter to pull the one the doctor pointed out, because it was one of a bridge of three. My face was so sore just then that just the *thought* of getting off the bridge and extracting one of the teeth almost crazed me. When doctors disagree, who shall decide? I prayed over the matter, and stuck to my hot-water treatment.

During the night, when things were at the worst, I remember feeling a good deal discouraged. I had prayed again and again, and was sorely tempted to think that praying did not do any good, nor have any effect in the matter one way or the other. I knew such thoughts were wicked, and I begged piteously to be lifted above them I prayed for faith. Let me digress a little right here.

In considering this matter of grip I had been looking over the papers to see what the doctors said about it, and I remember seeing a statement that a lady in Cincinnati had committed suicide, evidently for no other reason than that she was crazed with the pain of grip. In my feverish state of mind that night, some evil spirit suggested that it was, after all, quite a reasonable thing to do. I have sometimes asked myself the question, "How does anybody *know* that the suicide escapes pain or trouble?" This evil spirit that hovered near suggested, "Why, there is no *question* in regard to the matter at all. When one is *dead* he does not have the toothache, earache, nor any thing else. Death is certainly freedom from *every* ache and pain. It is rest and quietness. And quietness, even if coupled with no consciousness at all, would be deliverance, say to yourself, just at this time." But even if I was dreaming I had sense enough to know I was getting near to greater danger than any bodily aches or pains could give. There are other ways to get acquainted with Satan besides drinking whisky. I groaned in anguish; I prayed more earnestly than I had before for deliverance from *all* the powers of darkness. And then came something that astonished me. The feeling had been slowly creeping on me that, although my prayers had been answered heretofore, just now there was no answer. The dear Savior was gone. The consciousness of his presence, that had been with me through all my Christian life, seemed to have left me, and faith seemed dying out. At this moment I either heard a voice speaking, or words seemed unfolding themselves to my imagination, at first dimly, and then bright and clear. The words were these: "My God, my God, why hast *thou* forsaken me?" At first, with the pain and misery I could not recall the circumstances, nor tell in what part of the Bible the words were found; but they startled me because they seemed to picture with remarkable vividness the very thought that was in my mind And then it burst upon me that they were the *dear Savior's words* just before he gave up his life—words that seem to have been wrung from his very soul by the terrible agonies he suffered. If the Father saw fit to withhold from *him*, his only Son, for a brief period, his wondrous love, could I reasonably complain if he, in his infinite goodness and love, thought fit to give *me* a little glimpse of existence without a sense of his love and of his loving presence? The answer that I had received in this strange way gave me faith and grace and patience to bear my troubles all through the rest of that experience; and shall we not all remember that Jesus, the Son of God, our Savior and Redeemer, did not have all his prayers answered? That is, God did not at once give him relief or did not *always* grant all his petitions. Let us remember here that Jesus never asked any thing for himself. He never performed a miracle to feed himself when he was hungry. Our prayers are almost all for self.

Now, before closing let me turn briefly to Dr. Dowie and his wonderful institution. If I am correct, in his answers to questions he says all pain is of the Devil, and that there is no need of suffering from pain. Now, I have never heard any one say that Dr. Dowie ever fails in curing any disease or any patient. Even he himself does not tell of his failures. We grant he has had wonderful success; that many diseases have been cured by prayer, that doctors called incurable; but in fairness should not the public be informed of the failures as well as of the successes? We often send dear friends to celebrated sanitariums; and a great many times we are told the sanitarium can do nothing because the patient was brought in too late. Jesus never found a patient that was too near death. In fact, it made little or no difference to him whether the patient was dead or alive when he was called. Now, these faith-cure people certainly do not claim any thing of *this* sort. Sometimes God grants their prayers, and the patient is healed; and may his holy name be praised for this! But those who claim to be so near to the great Father that he heals diseases for the asking, certainly must, in the nature of things, live very honest, pure, transparent, and clean lives. They must shun every *appearance* of evil or deceit. I have sometimes thought that perhaps God might, even in these latter days, see fit to commission some child of humanity with power to perform miracles; but that child would have to be more honest and pure than any human being I have ever yet seen or heard of. Please do not think me too hard on humanity, dear friends. God, in his loving kindness, carried me through severe suffering. In his loving kindness, as I understand it, he saw fit to give me a knowledge by *actual experience* of the suffering that many of us are called on to endure, in answer to my prayer to know what his holy will is in regard to using drugs and even harmless liniments. So far as I can gather, he seemed to sanction rather the use of pure water, and showed me how to use it.

I do believe God is pleased to have us call

Digitized by Google

in our family physician, our family dentist, or the pastor of our church; but I do not believe it is his will that we should get through life propped up with drugs, stimulants, etc.; and in all these things where we are in ignorance I do believe, as the dear brother has said who wrote that letter, that his Holy Spirit will lead us if we put ourselves under his guidance.

May be I am not giving our family physician sufficient credit in this matter. He attended to the case very faithfully; asked questions; made suggestions; several times he inquired by telephone how I prospered. He emphatically objected to both quinine and whisky when I asked his opinion.* He said no stimulants of any kind were needed in such a case.† Of course, he gave it as his opinion that the tooth would have to be out before I could get relief; but when the dentist said he did not believe the tooth was the cause, the doctor pleasantly and willingly said he would do the best he possibly could without disturbing the tooth. Some of the faith-cure people will say I limited my faith in prayer by holding on to the doctors and hot water. You know they often claim that an invalid must show his faith by throwing away his crutches. In answer to this, permit me to say I put my entire case in the hands of the Great Physician unreservedly. I asked him to help me out of my trouble or else give me grace to bear it. I swept aside all my own notions or opinions, and looked to him, and to him only, for guidance; and I kept constantly in mind that relief for myself was a secondary matter; the first and foremost thing I begged and plead for was wisdom to guide, direct, and advise those who ask me almost every day what I would suggest in the way of treatment for certain maladies. Let me add one thing more: Both Dr. Dowie and Dr. Kellogg are certainly making a grave mistake when they say that the use of meat as food tends to develop the lower and baser passions. The effect of a lean-meat diet is just the contrary. Hundreds can attest this It is *sugar* and *starch*, especially the former, that feed and inflame the lower passions. There need be no argument in regard to this. Every one who has tested the lean-meat diet will have noticed this distinctly; and after it has been followed for a month, or a series of months, the tendency of the diet becomes unmistakable. There are thousands of doctors who have yet to learn this fact; but they *might* learn it very easily if they would take a little pains. While I have gone over most thoroughly all the arguments of the vegetarians, I am obliged to believe that not only the teachings of the Bible, but experience, in modern days, indicates that it is God's will that at least many of us should use animal as well as vegetable food.

* Let me give you a little instance right here, emphasizing the wisdom of consulting your family physician. Huber has had a siege of malarial fever. Before he had sufficiently recovered he went out into the woods and climbed trees to put up a telegraph wire over to a neighbor's Then he had a relapse. Some two weeks after he had recovered from the relapse, down he went again suddenly, and the fever thermometer showed 104 degrees. Mrs. Root and I were greatly worried, because we thought he was down with malarial fever the third time, and it seemed to us more severe and sudden than any of the previous attacks. When the doctor saw him he relieved our apprehensions very quickly by saying, "Yes, he has a fever, and a high one, but it is of another kind. There is no malaria about him at all. This is *grip* fever, and you need not worry about it." Sure enough, Huber was up and around the next day, and the day after that he was attending school. It is certainly wisdom to let a physician decide in the outset whether the trouble is something that may prove to be serious or nothing you need worry about.

† Among a certain class, 'quinine and whisky" has become a stereotyped remedy for the grip; and there is not a question in my mind but that it is an excuse for taking drinks, and, may be, getting on a spree. The physi ian who tells his patients indiscriminately to take quinine and whisky, should be, by concerted public opinion, left without patients or practice, and given to understand that he is a useless relic (or worse than useless) of the past. Surely no Christian physician can lend himself to any such scheme of the evil one.

SPRAYING FRUIT-TREES — WORMY APPLES.

Prof. Slingerland, of Cornell University, has just given us, in Bulletin 142, the most complete history of the codling moth that it has ever been my fortune to come across. Prof. S. has followed the insect for years, has studied its various phases in various parts of the United States, and has traced it with such fidelity from the egg to the adult moth when she commences laying eggs again, that there can not be very much mistake in regard to the matter. He has also made himself thoroughly familiar with every thing that has been written on the subject. His work is illustrated by the most beautiful cuts, not only of the moth, larvæ, and eggs, but of the embryo apples at the time the eggs are laid. He tells us just why we spray, when to spray so as to do the most good, and also cautions about spraying when it does little or no good. The part that interests bee-keepers most is the following, which we take from page 58. The italics are original:

Never spray a fruit-tree when it is in blossom.—You can reach the insect and fungous enemies just as effectively, and in some cases more so, either just before or just after the trees bloom.

The story is so well told that I read it with rare enjoyment from beginning to end, and read several portions of the bulletin over again. It rejoices my heart to know that the world contains such faithful, indefatigable students as Prof. Slingerland; and when such a man bends his whole energies, and ransacs the world for facts, he ought to be remembered gratefully; for getting rid of wormy apples the whole world over is no small thing, I tell you.

COAL OR GAS TAR FOR FRUIT-TREE BORERS.

On page 742 of our issue for Oct. 1, 1898, one of our subscribers gives a very emphatic recommend for gas tar. I felt a little uneasy about it at the time, for fear it might kill the trees; but I have just found a report from one of our experiment stations, backing up friend

Digitized by Google

Barr; so I think we may consider it settled that coal tar is all right. Below is the clipping:

Coal tar was very effectual, only a few borers succeeding in getting started in trees brushed with it, and it did no injury to the trees. The following proved sure death to the trees: Paris green mixed with glue, raupenleim (German caterpillar lime), and dendrolene.

DIGGING POTATOES BY MACHINERY DURING A WET TIME.

They say misery loves company. I felt a little ashamed to think we could not dig our potatoes with a modern high-priced digger, during the past fall. We clip the following from a recent number of the *Ohio Farmer*:

But you can not dig clayey land when it is too wet to crumble and rattle through the elevator. We could use ours scarcely at all this year — about two hours of a single day—the rest of the time for five weeks it was too wet, and we dug with forks. But neither plow nor cheap digger would work.

Prof. Chamberlain uses a Hoover digger, if I am not mistaken. Well, I do not wonder it would not work. But ours were all dug with one of the cheap shovel-plow diggers notwithstanding. I find, however, we have more cut potatoes than usual.

WARNING AGAINST FRAUDULENT TREE-PEDDLERS.

The above is the heading of a newspaper bulletin from the Ohio Experiment Station. They say that our adjoining county of Wayne is infested with fruit tree swindlers who are charging five times the ordinary value for peach-trees. The swindlers claim these trees are proof against the yellows. The people at our experiment station caution the people of Ohio to beware of any man representing he has something new and wonderful that our regular nurserymen and expert fruit-growers know nothing about. The bulletin well says, "There are no horticultural secrets." It says further:

Those who wish to get trees of any meritorious variety can procure them of any reliable nurseryman, at a fraction of the price asked by peddlers. No one need pay more than ten cents each for the best varieties of peach trees. Some new and untried sorts are held at higher prices, but no well informed peach-grower would plant any except old sorts that are known to be good, and these are very cheap.

WHAT SHALL WE EAT?

We copy the following from a government bulletin printed in Washington, D. C., in regard to food and health.

The cost of a diet may be lessened by consuming less fruit, cheaper cuts of meat, and fewer kinds of vegetables. Fruits add comparatively little to the food value of a diet, and the cheaper cuts of meat are as nutritious as the more expensive cuts. While vegetable foods are apparently essential to a well-regulated diet, no marked advantage is due to a great variety of vegetables. Wheat flour in the form of bread, etc., is one of the most nutritious and cheapest foods.

Please find inclosed subscription to GLEANINGS for another year. I think it a most valuable journal for the bee-keeper. Without it I might "keep" bees, but I certainly could not work them to advantage.
J. M. MITCHELL.
Glenhope Farm, Queensland, Nov. 11.

Our Roll of Honor.

I have been reading GLEANINGS since 1877.
Hogestown, Pa., Jan. 3. P. P. FORNEY.

I have been a continuous subscriber from the time GLEANINGS was printed by windmill power.
Fishkill, N. Y., Dec. 23. E. H. SHERWOOD.

I have read GLEANINGS since it was "Novice's windmill-print," but can not say now whether I commenced with the first or second volume.
Canajoharie, N. Y., Jan. 5. JULIUS HOFFMAN.

I have taken GLEANINGS ever since the second volume was issued, and I don't think I have missed a number. H. C. GILSON.
Burr Oak, Mich., Dec. 31.

I commenced taking GLEANINGS when it had only two leaves, and have now 20 years' volumes. Others come and go, but GLEANINGS stays. It is instructive and elevating, and to me it has been a great financial success. M. ISBELL.
Norwich, N. Y., Dec. 21.

I believe I have taken GLEANINGS from the first number, with the exception that I subscribed the first year for the quarterly, and did not subscribe for the monthly until the next year. I must have had, during this time, a number of hundred dollars' deal with you, which has been satisfactory in almost every respect. J. I. PARENT.
Birchton, N. Y., Dec. 19.

I think I have taken GLEANINGS that long, but can not say for certain; but I was taking it before the centennial, in 1876. I recollect the piece you wrote about asking the old deaf lady to make you some starch so you could show how to make foundation at the centennial. I have no data to tell, but was a subscriber when you printed it by wind power. I have never missed a copy since. ROBT. QUINN.
Shellsburg, Ia., Dec. 20.

I claim to be one of those who have taken GLEANINGS from the first. I did not commence with the first number, but I sent and got all the back numbers, and have that first small number yet when it was started quarterly. GLEANINGS has always been a great help to me, not only in bee culture, but in almost every thing else; and wife and children have been benefited by it too. ILA MICHENER.
Low Banks, Ont., Can., Jan. 2.

Friend A. I. Root:—I commenced in the bee-business in the spring of 1870, and have taken GLEANINGS continuously since its first number. I believe I have every number up to date, as I bind them in book form by volumes. Its constant improvement is a credit, not only to the present editor, but to the father who trained him to do the work so well. Happy New Year. WM MUTH-RASMUSSEN.
Independence, Cal., Dec. 27.

I have taken GLEANINGS nearly all the time since it was published, and have the back numbers laid by now. I have been a continual subscriber to the *American Bee Journal*, and have nearly every number since it was started, 1861. The way I became acquainted with Mr. Root was by his writings in the *American Bee Journal*. I built the first extractor, and shipped the first extracted honey from this county. I have been in the business since 1860. I wish you a happy New Year. D. H. COGGSHALL.
West Groton, N. Y., Jan. 1.

My Dear Mr. Root:—I do not want a prize, but I want to let you know that I have taken GLEANINGS from the very first number, and that all the volumes except the last two are bound. I followed Novice's writings in the *American Bee Journal* before GLEANINGS was started and have with pleasure watched the gradual progress made, and the high moral tone adopted by GLEANINGS, and hope it may long live to carry on the same work, for the benefit of bee keepers.
Wishing you a happy new year and long life and happiness, Yours truly,
Loomis, Cal., Jan. 9. THOS WM COWAN.

As well as I remember, about 22 or 23 years ago I went down into Mason Co. to attend a Sunday-school convention, and stopped with a Mr. Beard. There I saw a honey-extractor for the first time, and for the first time I saw GLEANINGS. Mr. Beard very kindly gave me a copy of GLEANINGS when he saw how much

Digitized by Google

I was interested in it. It was the first work I ever saw on bee culture. I came home and read it from cover to cover. Then I said to Mrs. F., "I must send right away for GLEANINGS before they tell all they know about bees," for I thought it would not take more than two or three months to do that, and then I should have no further use for GLEANINGS. How far I missed the mark I can't tell, for here you are still going on, bringing new things out of the old, as well as introducing many new ones. C. M. FARRAR.

Confidence, W. Va., Dec. 29.

Special Notices by A. I. Root.

ROCKY FORD CANTELOUPE MELON.

I notice our seedsmen want over $1 00 a pound for Rocky Ford grown seed. Now, while we were eating them there by the carload at Omaha, why didn't somebody think to save some seeds? and can't some of our Rocky Ford friends do a little better than the above on prices?

OUR FIRST STEAM-ENGINE.

On page 24 of our Jan. 1st issue I spoke of getting a 4½-horse-power engine to back up the windmill when the wind did not blow; but at that time I did not know that the maker of that first engine had at the time a standing advertisement (see page 111). It seems that he has been in the same line of business for over 25 years; and the low-priced engines manufactured by James Leffel, Springfield, O., are still doing a vast amount of work of different kinds throughout our land. After using ours for several years we sold it at a very fair price, and since then it has changed hands ever so many times; and it has been hauled around here and there, and the last I heard of it it still was doing good service although exposed to the weather and all sorts of rough handling.

TWO NEW ONIONS.

When I made up my list of novelties for our last issue I omitted two new onions—the Gigantic Gibraltar and the Australian Brown onion. The former is much like the Prizetaker, only larger, and so far every plant seems to produce a big nice solid onion. For starting in the greenhouse and transplanting in the open air, they are the best onion known, so far as I have heard. But, unfortunately, they are not a very good keeper. They should be sold not very long after harvesting them. The other one, the Australian Brown, is about the best keeper of any onion known. In fact, they have been kept over a whole season so that, when the old and new onions were placed side by side, one can hardly tell one from the other. Prices of the latter will be: Packet, 5 cts.: ounce, 20 cts.; pound, $1.75. Price of the Gibraltar: Packet, 5 cts.; ounce, 25 cts. It is said that neither kind ever produces any stiff necks or scullions. And by the way, this is often the case with any onion for the first few years after its introduction. After the seed gets generally in the market, and the price gets down, then seedsmen become careless about growing the seed. For this reason alone it sometimes pays to test new varieties of onions.

TEN DOLLARS FOR A SINGLE POTATO.

You may remember that, a year ago last October, Wm. Henry Maule permitted me to take one potato from T. B. Terry's, with the understanding that all I succeeded in growing from one potato *in one year* should be Maule's property. I to have $1.00 a bushel for growing them. Well, I grew three bushels; and after receiving my $8 00 I asked Maule what he would take for the potatoes. He said they were worth to him $10.00 per barrel; and as his stock was limited he did not care to sell for any less than that. I was somewhat disappointed because I did not succeed in getting more than three bushels from the one potato; but when I received Maule's 1899 catalog I saw where the trouble lay. This new potato is named the Commercial. Among its other qualities let me quote the following in regard to keeping:

> I have a record of keeping the tubers in perfectly good condition, in ordinary storage, until August of the year following their production. The potatoes were just as edible and mealy Aug. 15 as the day they were dug.

You see, I took that potato home and tried to make it sprout in the greenhouse. I fussed with it a great part of the winter, but I could not make the eyes sprout, to save me, till toward spring; then when I succeeded in getting some new potatoes in the greenhouse I had the same trouble in getting these same new potatoes to sprout in the open ground, so that the frost caught them before they had really done growing. Now, the very peculiarity that made this potato a bad one to grow one crop in the greenhouse, during winter, and another in the open air, during the summer, is one of its most valuable characteristics. If planted in the ordinary way it is medium early, and I believe it is the largest yielder of any potato I have ever got hold of. It is a seedling of the Wilson Rose, and is of the Rose type, and it certainly has great constitutional vigor. If any of our readers care to try it we will furnish it, by the pound only, at Maule's prices. Single pound, postpaid by mail, 50 cts. You may remember that T. B. Terry grew in the open air nearly two bushels of tremendously large nice potatoes from a single potato that Maule furnished him.

WHAT ARE YOU GOING TO GROW THIS SEASON?

A good many people are afraid to grow perishable crops for fear they may not be able to sell them all, or because they do not want to be obliged to stop their work to take care of the crop just when it is at its best. These perishable crops, like strawberries, snap beans, etc., bring the most money; but one must make a business of it to sell them. What can we grow that will have at least some value, even if we do not succeed in selling it when it is just right for the table? Well, there are quite a number of things. To begin with, all the beans we list are valuable in the dry state; and just now I could offer from $1.50 to $4.00 and even $5.00 a bushel for any of the beans we advertise if anybody had any to spare. Burpee's bush lima especially has for several years been worth from $3.00 to $5.00 a bushel for the dry beans; and I do not know what is to hinder somebody growing an acre and making "big money," unless it is the first cost of the seed. Of course, sell all you can for green beans. There is seldom a time they can not be sold at a good price in any town or city. If the people do not want them all green, just let them get dry and thrash them out.

If you have horses or cattle you can grow all kinds of beets. Sell them green if you can; if you can not, feed them to stock. In growing roots for stock, however, we have had rather the best success with carrots. These always sell for enough to pay quite well for growing; and although there may be horses and cattle that will not eat *sweet clover* when it is nice and green, I do not think you will find one that will not eat carrots with avidity, and thrive on them. Mix the carrots in with the dry feed along in winter and spring, and see if you do not call it a good investment.

Sweet corn can also be fed to horses and cattle if you can not sell it all green.

And you want to grow some onions. When they are just right to pull, give great big bunches for a nickel. Astonish people by the big lot of handsome ones you give for a small amount of money. Also grow some sets. Every little while onion-sets are worth from $3 00 to $5.00 a bushel. Get a variety you can handle; learn how to grow them, and then have some on hand every spring, and you will hit it once in a while, *sure*. And Hubbard squashes. Did anybody ever know a time when nice Hubbard squash would not sell for enough to pay a big profit on the investment? But you must have the ground rich Clean out the poultry-house and the pigpen, and work the contents into the ground thoroughly Spread your compost-heap where you are going to have your squashes. Then wherever you plant a hill, dig down a foot or a foot and a half, and make the hill a yard across, and dig it over every little while till it is time to plant the seeds. Then use the squash-boxes with a pane of glass on top. You must meet the first bug more than half way, and so on with the second and third. Scare them so badly to begin with that they will think the locality is not healthy; then after every thing else is off the ground put in some turnips and manage in the same way.

Meanwhile do not forget potatoes. Have them on the market before any one else in your neighborhood has thought of such a thing. Then when everybody else is bringing them in, get ahead of them all by showing some *nicer* ones than anybody else has seen. Then have potatoes coming along ready to dig clear up till frost. If they do not bring a good price in the fall, have some in the spring a little nicer and a little better than anybody else.

Now, if you want seeds of all these things look over our list in our last issue or send for our complete seed catalog. Please note our exceedingly low prices on beet seed, carrot seed, parsnip seed, squash seed, etc., in 5 and 10 pound lots.

Digitized by Google

Best Seeds that Grow!

Thousands of Dollars in CASH PRIZES for 1899

and many other New Features, of particular interest, presented in

BURPEE'S Farm Annual

Leading American Seed Catalogue Mailed FREE to all.

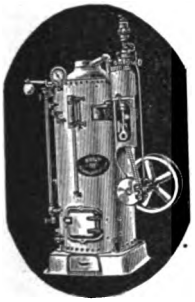
A handsome **new book of 176 pages,**—tells the plain truth about Seeds, including rare Novelties which cannot be had elsewhere. Beautiful colored plates and hundreds of illustrations from nature. Gives practical information of real value to all who would raise the choicest Vegetables and most beautiful Flowers. **Write a postal card TO-DAY!**

W. ATLEE BURPEE & CO., Philadelphia

In writing advertisers, mention GLEANINGS.

A FARM POWER

IS A NECESSITY



in the practice of modern agriculture. They are **needed for shelling corn, grinding feed, cutting fodder or ensilage, separating cream, wood-sawing, pumping water,** and a host of other things.

LEFFEL ENGINES and BOILERS

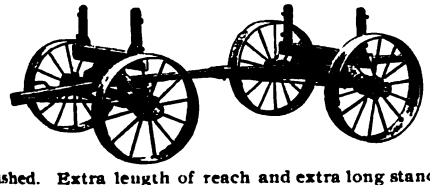
are clearly the best for the purpose. Either **Upright or Horizontal;** from 3 h. p. up. Safe, simple, easy to run. They are quick steamers, and require little fuel. Pamphlet with prices on application, stating size power wanted.

JAMES LEFFEL & CO., Box 44, Springfield, O.

In writing, mention Gleanings.

BUY THE BEST.

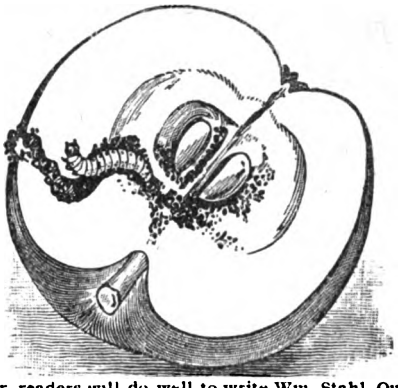
If you want the best low-down wagon you should buy the Electric Handy Wagon It is the best because it is made of the best material; the best broad-tired Electric wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red, and var-



nished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 95, Quincy, Illinois, for their new catalog which fully describes this wagon, their famous Electric Wheels, and Electric Feed-cookers.

SPRAYING FRUIT-TREES.

The question of spraying fruit-trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalog describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

Maple Syrup and Sugar

are scarce this season; the bogus article is never so. We can please you if you want the pure maple.

2 to 6 gallons fancy syrup at 90c; Nos. 1 and 2 grades, 5 and 20c less per gallon respectively. For more than case lot, club order, etc., write.

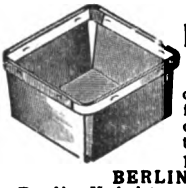
As to Our Rel'ability, write Boughton, Ford & Co., Bankers, Burton, O., or Adams & Ford, Cleveland, O.

Ohio Maple Syrup Co., Burton, Geauga Co., O.

In writing, mention Gleanings.

Fruit Packages of All Kinds.

—ALSO—

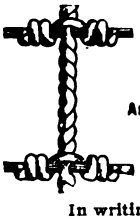


Bee-keepers' Supplies.

We allow a **Liberal Discount** on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - Erie Co., Ohio.

In writing to advertisers, mention Gleanings.



YOU CAN USE
Coiled Spring, Cable, Barbed or Smooth Wire in our
$10 MACHINE
And Build the BEST Wire Fence at 16 to 24 Cents per Red.
Agents Wanted. Write for Catalog
ROWEN CABLE STAY FENCE CO.
Box 62, Norwalk, O., U S. A

In writing, mention GLEANINGS.

Farm Bee-keeping

Is one of the leading departments in the **Modern Farmer and Busy Bee,** the best **Farm** and **Bee** paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT, St. Joe, Mo.

Digitized by Google

Special Notices.

BUCKETS, COVERS, SAP-SPILES, AND CANS FOR MAPLE SYRUP.

We are ready to mail on application a leaflet giving exceedingly low prices on implements for making sugar. Please do not forget our maple-sugar book, sent postpaid by mail for 25 cts., if you expect to do any thing with maple sugar the coming spring.

HONEY.

We have a good supply of various grades of comb honey to offer to those who may be in the market. Send for prices. We are in want of good extracted honey, and should like to hear from those having any to offer, stating how put up, quantity, and price asked. White extracted preferred.

CATALOG FOR 1899.

We have already printed a large edition of our new catalog except the cover, which goes on the press next thing after printing this number of GLEANINGS, and we will soon be mailing large quantities of them. Our list of names is so large that it will take us about two months to make, and mail all of them. If you get tired waiting for yours to come, drop us a postal request, and we will send you one; and when you receive the regular one from the list, hand it to some one interested.

To avoid advancing prices on foundation during the season, we have placed the list price high enough to cover any ordinary advances in the price of wax, and until April 1st, or further notice, we will sell foundation 2 cents a pound less than the prices listed in the catalog, which are the same as given in last issue of GLEANINGS.

Within the past two weeks there have been two further advances in the price of sheet zinc, making a total advance since last May of about thirty per cent. We have not advanced the price of Tinker zinc; but on Root zinc the price is $1.40 per sheet, and an advance of 2 cents each on honey-boards over the price ruling last year.

A NEW STRAWBERRY—THE NEW YORK.

The great strawberry specialist, Mr. W. F. Allen, of Salisbury, Md., in 1897 offered $100 in gold to anybody who would produce a better strawberry than the Glen Mary. The berry was produced by a schoolma'am; and after she received the $100 here is what she says about it:

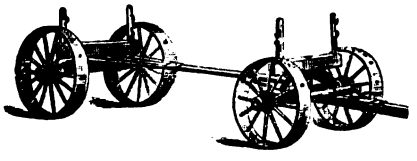
"Pleasantly surprised!" Well, I should think so. To say I was delighted when the express agent handed me that package yesterday afternoon would but faintly express my feelings. For the past two or three years I have tried nearly all the new varieties, and never in all the trials have I found a berry that gave me as much satisfaction and profit as my new seedling, the "New York." I was satisfied that we had a superior berry when the boarders here were so anxious to carry berries home with them, gladly paying us 25 to 30 cents per quart, when we were selling our other berries for 8 and 10 cents per quart. MARTHA G. YATES.

Tompkins Co., N. Y., Jan., 1898.

The berry is a selected seedling from the Bubach and Jessie. The price is only $5.00 for 12 plants. Mr. Allen controls, of course, the entire stock. One does not want to buy a great many at that price; but we have already sent in our order for two plants, and expect to report in regard to them during the season.

Farm Wagon for only $19.95.

In order to introduce their low metal wheels with wide tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19.95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices, made any size and width of tire to fit any axle.

Maple Syrup Outfit.

Nearly new; hundreds of tin buckets, Record spouts and wood covers at your own offers, or will take $7.75 per 100, buckets, spouts, and covers.
GEO. VANDEVORD, Sault Ste. Marie, Mich.

STRAWBERRY Plants. Largest and choicest stock in the world (50,000 000; 100 varieties.) Lowest prices. Safely and cheaply delivered anywhere on continent. Catalog free. **Continental Plant Co., Strawberry Specialists. 49 South St., Kittrell, N. C.**
In writing, mention Gleanings.

For Sale. 20 Strong Colonies Hybrid Bees, Dovetailed hives. Most of the frames wired combs, straight, in good condition; $2.00 each.
M. GARRAHAN, Kingston, Pa.

A due bill for 10 cents' worth of plants for 10 or more good names of fruit growers. Handsome catalog free. W. N. SCARFF, New Carlisle, O.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange apiarian supplies for colonies of bees from the South in April.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Man who understands bees, gardening, and hotbeds, for coming season. Must give reference. JAS. WEST, Box 229, Montpelier, Ind.

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—To exchange two small printing-presses and printing outfit for bloodhounds, ferrets, fancy poultry, bicycles, or something I can use.
JAMES M. DENHAM, Valley, Ky.

WANTED.—No. 1 white comb honey in 4x5-inch sections; also to furnish my hives and 4x5 sections for a share of the next honey crop, to parties within 100 miles of this city. Address *at once*
F. DANZENBAKER, Washington, D. C.

WANTED.—Young man who does not use liquors or tobacco to work the coming season on farm where honey, fruits, and general farm crops are raised. Give references. C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.
HENRY ALLEY, Wenham, Mass.

WANTED.—To exchange No. 1 Star sweep feed mill, 2 horse, good as new, for rifle, shot gun, bicycle, or offers. D. V. MCMANUS, Forestville, N. Y.

WANTED.—Position in California apiary. Can take full control. References if wanted. Age 29. Single. T. P. MURREY, Fort Collins, Col. L. B. 585.

WANTED.—To exchange raspberry plants (Gregg) for queens, nuclei, or something that can be used in bee-yard. J. E. HENDERSON,
Box 7, Elm Grove, Ohio Co., W. Va.

WANTED.—By a practical apiarist and queen-breeder, a position, in any locality; or an apiary on shares. ABBOTT L. SWINSON, Goldsboro, N. C.

WANTED.—To exchange for 25 or 30 H. P. engine and boiler or offers, the Ronda machine and engine boiler we have, both to apply.
RONDA MFG. CO., Ronda, N. C.

WANTED.—To exchange supplies, nursery stock, or seed potatoes, for printing-press, honey, or wax.
O. H. HYATT, Shenandoah, Page Co., Iowa.

Digitized by Google

Vol. XXVII. FEBRUARY 15. 1899. No. 4.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS.

The A. I. ROOT Co.
MEDINA · OHIO ·

MURRAY-HEISS CLEVELAND O

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Digitized by Google

Why not Have the Best?

The ever increasing demand for **COLUMBIA AND HARTFORD BICYCLES** has reached a point that renders it possible to run our great factories to their full capacity. This immense volume of business enables us to offer these **STANDARD** wheels at prices but little higher than the price of the poorest.

COLUMBIA and HARTFORD.

Price Reduced. Quality Maintained.

Columbia Chainless,	$75	Hartford,	$35
Columbia Chain,	40, 50	Vedettes,	25, 26

Our 1899 models show marked advancement in mechanical construction. The best machines we have ever built. That means their equals do not exist.

SEE THEM.

POPE MANUFACTURING CO., Hartford, Conn.

In writing advertisers, please mention GLEANINGS.

This Double Buggy Harness, $20, as good as sells for $30.

WE HAVE NO AGENTS, but have sold to the user direct at factory prices for the past twenty-six years. We ship anywhere for examination. **Everything Fully Warranted.** We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively. Our line consists of Rockaways, Surreys, Traps, Phaetons, Stanhopes, Driving Wagons, Top Buggies, Open and Top Road Wagons, Spring Wagons, Delivery Wagons, Milk Wagons, Wagonettes and **all styles of Harness.**

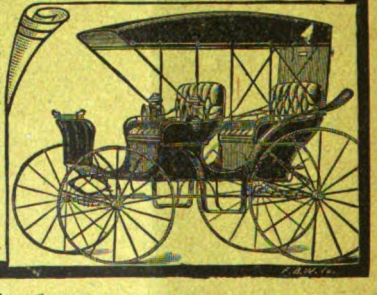
Send for Large Free Catalogue.

ELKHART

Carriage and Harness Manfg. Co.,

W. B. PRATT, Secy. ELKHART, INDIANA.

This Extension-Top Surrey with double fenders, complete with side curtains, aprons, lamps, and pole or shafts, for $72.
Just as good as retails for $110.



In writing advertisers, mention GLEANINGS.

$26

REAL BARGAINS

Road Wagons at $16.45
Top Road Wagons at $22.70
Top Buggies at $26.00

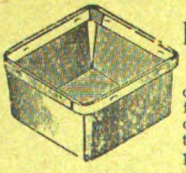
Surries $43.50; Phaetons $37; Spring Wagons $29; Single Harness $3.75; Farm Harness $12. Also Carts, Saddles and everything in the vehicle line at lowest **wholesale prices.** All correct in style, quality and workmanship. Buy direct from factory. Save dealer's profits. We sell one or more as low as others sell in car lots, and ship C. O. D. with privilege of examination. Guaranteed as represented or money refunded. Write for catalogue and testimonials ***Free.***

CASH BUYERS' UNION, 158 W. VanBuren St. B 345, Chicago

Fruit Packages of All Kinds.

—ALSO—

Bee-keepers' Supplies.



We allow a **Liberal Discount** on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - Erie Co., Ohio.

In writing advertisers mention Gleanings.

Digitized by Google

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

VOL. XXVII. FEB. 15, 1899. No. 4.

STRAY STRAWS FROM DR. C. C. MILLER

HOW'S THE GRIP your way?

PERHAPS one mistake in the honey-leaflets is printing the price on them so customers can see how little they cost.

EIGHT FOUL-BROOD inspectors in Colorado inspected 4885 colonies; found 233 diseased, and destroyed 31.—*Amer. Bee Journal.*

I MIGHT SELL friend Atherton (p. 96) some wide frames cheap, but he's never done me any harm, and I wouldn't advise him to take them.

PROF. COOK argues in favor of the belief that all honey-dew is of insect origin, but I think I've read just as strong arguments on the other side in foreign journals.

FRUIT BLOSSOMS covered with netting to keep out the bees remained one to seven days longer than those uncovered; apparently waiting to be fertilized.—*Bienen-Vater.*

I DON'T KNOW enough to know whether Adrian Getaz' logic is all sound, p. 89, but I do know that if I could have all colonies strong the last of April I'd risk the useless consuming they'd do.

H. S. PRICE says in *American Bee Journal*, that from a fruit-farm he got only $16 instead of $1600 because too rainy for bees to fertilize the blossoms. Others without bees got nothing [See Pickings.—ED.]

IT IS PLEASANT to know that *Deutsche Illustrierte Bienenzeitung*, formrely so ably conducted by the lamented Gravenhorst, is to continue under the editorship of his son Hugo, assisted by his sister Franciska.

AN EIGHT-FRAME HIVE is not as safe as a ten-frame for one who pays little attention to his bees; but it's *big enough* for any one who is allowed to use two stories. I'm sure a ten-frame is sometimes too small for me.

IN REPLY to friend Pettit, p. 95, I may say that I've always had separators ¼ inch below tops of sections, and used insets manufacturers happened to make, and have not been troubled with bees building in the space thus made.

THE FOUL BROOD LAW of Colorado is somewhat radical. If I understand it, as given in *American Bee Journal*, when a man has foul brood, and 20 of his neighbors know of it, himself and his 20 neighbors will each be liable to a fine of $5 and costs.

"PICKINGS," the new department in GLEANINGS, is a child of promise. I don't dare to say otherwise. "Stenog" is the man who untangles my punctuation, and keeps an eye on my English; and if I vex him he might print my stuff just as I send it.

HERR SCHROEDER, in *Centralblatt*, says mead can be made free of alcohol. If a wholesome, popular drink could be prepared from honey, it would make quite an outlet. Now will some of our good German friends tell us just *how* it is made?—wenn es Ihnen gefaellig ist.

A CHEEKY CHAP is Pres. Aikin, of Colorado. At their convention he talked about the State association being second not even to the National. Well, I don't blame him. What other State association has 154 members? Pres. Aikin and Sec'y Rauchfuss are both hustlers and fine fellows.

DR. MASON says, in *Amer. Bee Journal*, that his bees breed in cellar—believes they're stronger now than in November. Critic Taylor says his can't be depended on to lay later than Sept. 10, and they average only 5½ months in the year. Can't these two brethren make some kind of compromise? How would it do for them to swap queens?

ACCORDING to the first edition of the Standard dictionary, the honey contained in a section box may be called a section. A number pitched into me insisting that it was not so used outside of Marengo, and I asked the publishers to expunge that definition. Now comes S. T. Pettit, p. 95, and says it's right. I might have let the definition stand, adding in brackets, "Local; Belmont, Marengo."

THAT GUESS of the editor, p. 77, that "in the majority of cases it is chunks of propolis" that blacken combs will hardly do. Don't queenless bees deal in propolis? J. E. Crane says, p. 44, that brood-combs in a queenless colony were pure white after four months. That could be better explained on the theory in one of the foreign journals (I forget which),

Digitized by Google

that the dark color is caused by the first dejections of the young bees, which are of such intense yellow as to appear black.

HONEY-BATHS, according to *Bienen-Vater*, are very much in fashion in Paris to give fullness to ladies beginning to fade. [I do not take much stock in offering a good thing on the outside. Good nutrition and an unclogged condition of the alimentary canal will do more to take out the fade than any thing else; and more to keep off grip than all the medicines that were ever concocted. Don't you think so, doctor?—ED.]

ACCORDING to some interesting figures given by G. M. Doolittle, in *Amer. Bee-keeper*, honey brings 35 per cent as much to-day as it did 25 years ago, while supply-dealers get only 20 per cent as much for sections; this, too, with the extra burden of now making two sections for 2 pounds of honey instead of the former one section. Evidently supply-manufacturers have done their share toward meeting low prices. [See Pickings.—ED.]

THE TROUBLE about raising money for the Langstroth monument is the false pride that prevents a man contributing unless he can give a large sum. French bee-keepers are giving 10 cts. and upward for a monument to de Layens, and have reached nearly $300. [That is the way, of course, to raise the monument fund. While we have a few small subscriptions for the Langstroth monument, some of them are as large as $25.00.—ED.]

IF L. STACHELHAUSEN is correct, as I think he is, as to the effect of baits in supers, p. 85, then they form quite a factor in prevention of swarming. Forcing bees to begin on raw foundation in super by the crowded condition of the brood-nest is forcing them just so much toward swarming. [This is a good point. It is one of the golden nuggets that appear in the ordinary articles of some of our contributors, but which the editor had not seen. I now desire to give it all the prominence I can, as I believe there is a good deal in it.—ED.]

HASTY is incorrigible. The idea of his talking the way he does on page 81, when a faithful friend tries to mend his manners! The worst thing is the evil of his bad example. The editor had begun trying to reform, and now with Hasty's vicious lead there's no telling where he'll go. [Hasty is all right; but I suppose I shall have to take middle ground now. At least nine-tenths of the A B C book, last edition, has adopted the neuter pronoun, and it is too much of a job now to change back, hunting out all the *its* and making them *he* again. As it is, I have a mortal fear that in some places it may read *it* and *she* both. Indeed, I know it does on two or three pages, greatly to my mortification; so if you see the inconsistencies, do not say any thing about it until I get a chance to rectify them.—ED.]

ONE REASON I want cleats on hives to go clear across is to strengthen the weak place left by the rabbet. Another is that I want to be able to take hold at any part, and sometimes two of us want to carry one hive. [Running a cleat clear across the front and rear of the *regular Dovetailed hive* with its cleated cover would not strengthen the weak place left by the rabbet, for the reason that the cover cleats drop down ½ inch, nearly, and consequently the lifting cleat would have to drop down ⅝ inch, and that would bring the top edge at a point just about on a level with the bottom of the rabbet. On the other hand, doctor, your hive-covers are cleated in such a way that there are no downward projections. This allows cleats to come clear up flush with the top edge of the hive. I can not see what other advantage there is in having cleats reach clear across the hive-front unless it is where two persons carry hives with the rope lift, such as you use. Isn't it true that the average bee-keeper uses a wheelbarrow? Hives with Hoffman or self-spacing frames don't require to be handled like eggs. —ED.]

I TRIED on a large scale that plan of preventing increase, p. 90, by *in*cluding the queen with an *ex*cluder so as to let the young queens fight it out. I could stand the sulking if that was all. They would swarm so repeatedly, and get so desperate about it, that nearly all the bees from five or six strong colonies would hang in a single bunch, sometimes nearly all day, and only too often a queen would get out, and then there would be trouble. The queens were not small either. [Since you speak of it, I now recall that, when I tried the same plan, the bees became desperate. They not only sulked, but kept swarming out every day or two. So far as their usefulness for honey was concerned that season, I might just as well have brimstoned them. In handling this matter of swarming it will not do to thwart the bees—that is, once let them get the desire and *then* forestall them. The thing to do is *to keep away the desire*. Control of increase based on any other plan is almost sure to be a failure. "To keep away the desire." Right here Stenog, who is taking down these answers, stops long enough to observe: "There is a great sermon in those words; for what evils have not been hatched by a failure to kill the brood by crushing out that *desire?*" —ED.]

L'APICOLTORE says wax is purest cooled slowly, but of best color when cooled rapidly. It advises slow cooling, scraping off the bottom of the cake, then a second heating, followed by putting the dish in cold water to cool immediately. Is it possible that the second cooling will give it a better color than it had before? [You may put this down as an axiom in the wax business: The longer the wax is kept hot, the darker will be the color when it cools; but it is true that, when it is cooled slowly, impurities settle to the bottom of the receptacle. It is our practice to melt up about 1000 lbs. of wax at a time, and then we let it cool just as slowly as possible. Just before it congeals it is drawn off into cans; after that it is melted but once, and kept in that condition only long enough to bring it to a sheeted condition, and that usually is less than an hour. The trouble with the old methods of making foundation is that they required the old-fashioned dipping-tank, a vessel that had

Digitized by Google

to be deep enough and wide enough to take in a dipping-board. The wax in this tank, or at least some of it, would be kept hot all day; and we found by experiment, several years ago, that keeping hot for three or four hours, or frequent reheating, would darken wax very perceptibly. Wax in the first place, then, should be kept hot only long enough to let impurities settle to the bottom of the receptacle. After that it should be worked into foundation about as soon as it is melted. The Weed new process is worked on this plan. There are no dipping-tanks, and not at any time during the sheeting a larger supply of *melted* wax than two common pails would hold.—ED.]

"THE VETERANS probably do not care for instructions to beginners," says the editor, p. 101. I don't know whether you call me a veteran (been puttering at the business 37 years), but I don't dare to skip instructions to beginners for fear they contain something I don't know. If I skip any thing, it isn't instructions to beginners. [You say you do not dare to skip instructions to beginners. If you do not, very likely there are many others who take the same ground. If so, then it would behoove us to put more matter in, suited for the novice. It is true, that many and many a time a veteran may pick up something from a brother bee-keeper who "supposed that every veteran knew it all the time." Mr. Doolittle, for instance, gives special instructions to beginners; but very often I have picked out from his department a number of ideas new to me. I should like to have veterans as well as beginners express themselves a little more on this question. It will cost no more to make a journal to suit the needs of the masses of bee-keepers than that of the select few; but the editor and publisher must know what the masses really desire. A great many have written so far, "Keep the journal as it is;" but this number, however, represents only a very small per cent of our *silent* subscribers who I am sure have preferences.—ED.]

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

BY "STENOG."

How doth the little busy bees
Improve these wintry nights?
By telling yarns and cracking jokes,
And looking at the sights.

AMERICAN BEE JOURNAL.

Dr. Miller has found snakes under and in hives, but he thinks they do no harm.

F. A. Snell does not want snow over the hives, as it starts brood-rearing too soon. It keeps the bees too warm.

R. C. Aiken has a proposed experiment to show the comparative yields of comb and extracted honey. It is to be hoped that Mr. A. will settle this vexed question.

Concerning swarming, Frank Coverdale says:

For years I used 10 and 8 frame hives side by side, and the former swarmed fully as much. I am fast coming to the conclusion that it is not so much in the size of the brood-chamber as how completely it is filled with brood before the opening of the harvest.

As to the size of hives, C. Davenport has the following to say:

I prefer and use a hive containing only 8 standard-size frames, and with them I can obtain more honey per frame work, feed, and capital invested considered, than I can by using larger hives. But I have no doubt 10-frame hives, taking a series of years, would give better results to the average bee-keeper, for, as a rule, it requires a much closer attention to details when using 8-frame hives; but many years' experience with hundreds of colonies, and with hives of various sizes, has convinced me that a 10-frame hive is better than a larger one for the production of comb honey in the Northern States.

On p. 49 Mr. Doolittle answers the question whether imported queens are better than those bred in this country. He takes the ground that the latter are not only as good, but even better. Mr. D. says he is informed that imported queens, unless it is very lately, are "from a promiscuous selection, mostly taken from second and third swarms." However that may be, if importations were to cease entirely there is no doubt that the present high standard of American queens would be continually lowering.

Concerning the value of bees to fruit, the following should be pasted in the hat of every bee-keeper in the land. It is from H. S. Price, of Livingston Co., Mo.:

I have the management of the Plunkett Hill Fruit-farm at this place, and I sold, last season, $16.25 of fruit. It should have been that many hundred dollars; but the rain kept the bees in so they could not fertilize the blossoms, so we had only a "drop in the bucket." I was the only one who had any fruit to sell in this section of the country; and if it had not been for my bees I do not think I should have had 16 cents' worth of fruit. I am, as you will see, a firm believer in my bees.

Mr. Price says he will have no bees but the pure Italians, as they are better workers.

AMERICAN BEE-KEEPER.

Mr. Ben Honnett, of Colorado, says he would rather have one acre of sweet clover than two acres of any other honey-producing plant.

The editor, Mr. Hill, contributes some interesting notes on Cuba. After speaking of the disappearance of the bellflower and other honey-plants, he says:

But the light of liberty, which has been obscured since Oct. 29, 1492, is again perceptible on the horizon of this beautiful isle of the sea, and its liberation from the hand of tyranny will open up a field for new enterprise which will not be less important in the bee-keeping world than in other branches of industry there to be developed.

Replying to Mr. M. W. Shepherd as to the causes of hard times and low prices, Mr. G. M. Doolittle has the following to say, and it seems to me he says it pretty well:

If prices of sections and honey had kept step together, sections of the same quality as those of the '70's would be selling at $5.00 per 100 to-day, or section

Digitized by Google

honey at 6 cts. a pound. And yet with honey having more than one third the advantage over sections, Bro. Shepherd has the gall to hint high prices of sections as the reason for the low prices of honey, or "hard times."

Mr. Doolittle says the average price of honey in the 1870's was 25 cts. per lb., and 1-lb. sections $12.50. Comb honey now averages 10 cents, while the sections have fallen to $3.00, and are greatly superior in quality and workmanship to those made in the '70's. These figures are certainly suggestive.

An interesting article on Japanese bees is contributed by K. Aoyanagi. He says their history informs them that bees came to Japan from Corea about 1250 years ago. Their main bee is grayish-yellow, and when it gets older it becomes darker. Its queen has a good temper, and they "have no trouble in managing her." Japanese bees never suspend their work and stop brood-rearing during the summer. The writer of the article says he never uses smoke or veil. He says their bees are better tempered than the Italians, but they are sensitive and easily frightened. They are readily robbed by the Italians. The comb made by the Japanese bee is so thin that it will not well stand shipment. The Japanese bees have a better sense of smell than the Italians, as they were first to find stray drops of honey dropped on the ground. For rainy countries like Japan the native bees are better than the Italians, as they do not stop work during a rain Some Japanese bees were sent to Australia, and the people spoke very highly of them.

BEE-KEEPERS' REVIEW.

Mr. Taylor says, "There is nothing more valuable about a book or journal than a good index." I'm glad to see my old department appreciated by Mr. Taylor; but it is a fine job to make an index that will enable one to put his finger on a certain item the first time trying.

L. Kreutzinger has a new entrance-closer. He uses two sheets of perforated zinc, one in front of the other. By moving one strip a little to one side the perforations in the zinc can be made smaller or larger, or closed altogether. Sixty hives an hour can be opened in this way. Mr. Hutchinson calls it "handy and effective."

E. A. Daggitt is pleased with Taylor's criticisms, and calls for a high literary standard in our journals. Mr. Daggitt says he suffers from "the strange fatality of the compositor making mistakes in putting his writings into print." I see he does. He seldom has an article printed without one mistake. Mr. Daggitt says he has never favored open separators, and fears they are not going to be the panacea for that ill in bee-keeping they were claimed to cure. He says if an opening is good, a separator of wire cloth would be the thing, and yet the latter has been discarded. He seems to favor the non-use of separators, saying:

It stands to reason that, if closed separators discourage the bees from properly attaching the combs to the sections, the less of them we have the better; and if we have none at all, still better.

It seems as if his fears were founded more on theoretical grounds than practical; for certainly much praise has come from those who have tried the open separators, and their increased sale is phenomenal.

To get *all* of the wax out of slumgum, I. W. Beckwith, of Wyoming, uses what might be called a very large lemon-squeezer One of the levers is laid horizontally over a tub, its smaller end resting on a sawhorse. A hole, 2x3, is cut in the wide part of the horizontal handle, and this hole is covered with six or eight wires. The melted wax is put into a thick cloth sack, allowing it to drip into the tub as long as it will. The sack is then laid between the jaws, the upper lever is pulled down. and the rest of the wax runs between the wires into the tub. The sack is turned and pressed several times. Mr. B. says the residue shakes out like meal. The bag used is made of a grain-sack.

C. Davenport begins a series of articles on brood-chambers, covers, and even box hives that he prefers. The hive he prefers as a single-story brood hive is a plain eight-frame one. He make the assertion that "Dovetailed corners add nothing to the convenience or utility of a hive," although he admits that it makes the strongest joint possible. He strongly advises painting hives. Mr. Hutchinson erroneously prints "Southern, Minn.," as Mr. Davenport's address. There is no such post-office as that. It should be Southern Minnesota—that is, the southern part of that State. I mention this so our readers will not waste time by writing to Mr. Davenport. Besides, there is no person of that name.

E. E. Hasty, who for so long a time has been the bright evening star of the *Review*, has sunk beneath the horizon of Michigan. He gives his reasons as follows:

I can't *read up* my journals evenings—have lost hope of being able to do so. The result of this is that whenever a "View" *has to be* made out, the reading first has to be done, all in a pile, and the time for it taken out of the few hours each day when I am at my best. The *net result* is that the number of days it takes to make out a "View" is unreasonably great, and has come to be unendurable.

Mr. Hasty is right. Nothing is more trying to the nerves than selection. I have known women to be unstrung by the labor of selecting a dress pattern. The ones they are compelled to leave cast a shade of regret on the one selected. So in telling what people write about in the journals, a condenser is constantly regretting what he can not reproduce. After a Hasty submergence, however, that star is now seen in the morning, in the constellation Gleanings, shining with its old-time glow.

THE MODERN FARMER AND BUSY BEE.

Mrs. Lizzie Ireland, of Norway, Kan., seems to have put a quietus on any further discussion of sweet clover being of value for honey and for fodder for stock. She says theirs was

Digitized by Google

sown on very rich ground, and grew six feet high, and was literally covered with bees from June 24 till the end of July. They had half an acre that was sown last spring. It was cut three times, and fed to hogs and calves that were shut up. She further deposeth:

I just wish some of the cranks that call sweet clover a "weed" could have seen those hogs. They were the very best we ever had on the farm, and it was all on account of sweet clover. They were not just nice to look at, but tasted nice also, being the sweetest pork I ever tasted. We will try cows next summer.

In the issue for Feb. 1 the editor has a timely article on the necessity of teaching apiculture as a branch of farming at our apicultural colleges and experiment stations. He says it is as completely ignored as if there were no such thing. He says:

When the matter is presented to those in authority, the excuse is made that there is no money to pay even the board and traveling expenses of a competent man to present the subject, and yet money is found to secure teachers in every other branch of agriculture. Every two years the Legislature of Missouri is asked to make large appropriations for the benefit of the agricultural school, . . . but there is never a hint of any of it being used for the advancement of apiculture. At the present session the Legislature will be asked to make an appropriation of $30,000 to advance horticulture, but there is no thought of any money being used to promote bee-keeping, although the horticulturist is largely dependent on the bees.

GENERAL CORRESPONDENCE

THE EVOLUTION OF THE HONEY-BOX.

The First Section Boxes; 2-lb. Boxes; Tall Sections vs. Square Ones; Sections 3⅝x5 vs. Sections 4x5; A Few Cold Facts in Favor of Plain Sections.

BY J. E. CRANE.

One of the incidents of my childhood was the attempt of my father to secure "box honey." It seemed to be a common subject of conversation how this could be done. I remember well the boxes of those days. Some of them would hold from ten to fifteen pounds of honey, while others held twenty or thirty pounds. Some were made of planed lumber ⅜ in. thick, while others were full ½ inch, and unplaned. I remember my father trying to market such honey, and coming home much disgusted. Evidently a few boxes had overstocked the market, and he brought much of it home with him. Later a piece of glass was fitted into one end of the box to tell when it was full.

The first winter after I began to keep bees, more than thirty years ago, I made up a large lot of boxes nearly 13 inches long by 7 wide and 5 deep, with sides and ends of glass, while a few were half this size, which was as small as it was supposed at that time bees would fill or work in to advantage. In 1869 I secured a large crop of honey in this large-sized glass box, with a little in six and four and even three pound boxes, which were regarded as apicultural curiosities rather than of much practical value. Later on, visiting the New York markets I found honey in boxes about four by six inches square by five deep inside, with two combs running lengthwise of the box. This was believed at that time to be about the limit of profitable reduction of the size of a honey-box; and for some, I believe I may safely say, for many years, was the standard size in that market.

I have spoken of my own experience, for I suppose it was the experience of many bee-keepers of that time, and shows the gradual reduction or change from a large to a small box. Often these two-comb boxes would have one comb fit for market, while the other was so poorly finished that the whole box had to be thrown out. How often in those days I wished I could in some way separate the combs! but in vain.

At last the section, with the edges of sides projecting ⅛ inch beyond the top and bottom, appeared, with a separator to secure straight combs, and it was found possible to secure at least fair crops of honey in two-pound combs that could be glazed after they were filled. This has seemed to me one of the greatest inventions in the production of comb honey. And after a little time the two-pound combs became the standard size, from one end of the country to the other.

But presently some adventurous persons proposed a one pound box or section, as such would sell for two or three cents per pound more than the 2 lb. boxes. Others thought that the loss in quantity would balance the extra price obtained for the one-pounds. To overcome this loss it was proposed to have the 1-lb. boxes or sections built in large broad frames in the brood-chamber, and the size, 4¼x4¼ square, was adopted, because eight of them would just fill a Langstroth frame, and, if of the proper thickness, would weigh an even pound.

So popular have these become that they have practically driven the 2-lb. sections from the market. There is, undoubtedly, quite a loss from the use of these small sections in quantity, as I find many intelligent bee-keepers find the product per colony has diminished, even in locations not overstocked with bees.

A very intelligent bee-keeper told me, some time since, that, in a conversation with Mr. Harbison, of California, who at one time was the largest bee-keeper in this country, if not in the world, said he could not afford to use the 1-lb. sections, even if they did retail at ten cents per pound, while the 2-lb. sections were retailing at fifteen cents, as the smaller quantity secured, more than balanced the lower price of 2-lb. sections. The fact that the many attempts which have been made to use a half or quarter pound section have ended in failure would indicate that a section of less than 4¼x4¼ is likely to prove unprofitable and quite impracticable. I tried it myself some years ago, but have not cared to repeat the experiment. Bees seemed to dislike to build comb and store honey in very small

Digitized by Google

receptacles, or else were unable, when clustered in very small bodies, to secrete wax and build combs rapidly. We have learned by the use of single combs of various thicknesses, the thickness of comb that bees can build to the best advantage, which seems to be somewhere from 1 to 1⅜ inches.

With the difficulty of using sections much smaller than 4¼x4¼ there has been a desire to change the form by making the section narrower and taller. Such, it is claimed, are more artistic in form, and appear to the buyer to contain more honey than the square section. If this were all it is doubtful if such a change would pay; but there may be other and more important reasons.

While passing through the Seventh St. market, in the city of Washington, some time ago, I saw a lot of honey for sale, in plain sections 3⅝x5x1½. I noticed it more closely as I did not remember to have seen honey put up in this size of section before, and had thought seriously of trying this size myself in place of the 4¼x4¼ I now use. I was much disappointed in the appearance of the honey, for, although it seemed evident it had been made in a section of country where there was a good flow of honey, yet the combs were poorly built out, even with the advantage of a fence.

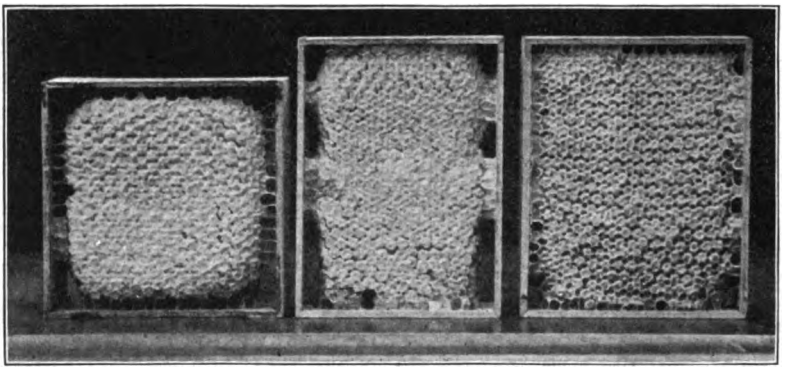
I went to look at it again the next morning, and finally bought an average of the lot, to have it photographed, and it is the middle one in the plate I send with this. I saw another lot of honey in the same market in the same style of box, but no better. Had the foundation been cut too narrow, or were the sections too narrow to suit the bees? or was it bad management on the part of the bee-keeper. It may have been any one of these; but I was inclined to believe that the width, 3⅝, was too narrow to suit the bees.

A little later I was in the New York market; and although I must have seen many tons of honey in this size of section, and some even of less width, stacked up with glass fronts, I do not remember to have seen more than a little that would average any better—even the face combs of the cases; but I saw some in sections 4x4½ and 3⅞x5 that would average decidedly better. Some of the 4¼x4¼ were finished better.

While in Washington I saw Mr. Danzenbaker's honey, of which I had heard so much, and with his permission I selected an average section, or tried to do so. I also tried to get an average 4¼x4¼ section as they appeared in that market, and had them photographed together. Which do you like better? While in W. I also saw honey in the 4x5 section that was produced by some one, I don't know who, that looked quite as well as Danzenbaker's honey—I thought a little better—but I did not tell him so. Since my return home I have received a photo of some produced here in New England—I have now forgotten by whom—in this same style of section (4x5), that looks about as well as either. I believe all were produced in the Danzenbaker hive, as the sections are of the same size.

Does a slight difference in the form or shape of the section influence bees in filling it with comb and honey? If so, what is the best shape and size for a section that will weigh a pound to secure the best results? My own experience teaches that bees will finish sections 1⅞ thick much quicker and better than those ⅛ inch thicker. Will ¼ or ⅜ put on or taken off the edge of a section make much difference? From what I saw in the markets I am inclined to think it does—i. e., when it is already as small as the bees will work in readily or to advantage.

A very intelligent bee-keeper told me recently that he had tried the 4¼x4¼ by the side of the 4x5 sections on the same hives, and the bees would enter and fill and finish the 4x5 sections first. This is "important if true," as the newspapers sometimes say. We have all observed, doubtless, how much faster bees will build comb downward than sidewise. Near the close of the A B C of Bee Culture is a plate, No. 24, showing how bees build natural combs. Instead of one long comb extending from near one end to the other on the under side of the top-bar, as we should naturally expect, we find several small combs, longer up



THE COMPARATIVE FILLING OF THE THREE SIZES.

Digitized by Google

and down than sidewise, almost the exact proportion of a 4x5 section. How much the instincts of bees are modified by the use of foundation I can not say.

Another advantage of this size of section is that it has a larger comb surface, and will weigh a full pound, while not as thick by ⅛ inch as the 4¼x4¼ section weighing the same, and this may be its strong point.

Will the evolution of the honey-box bring the plain section into general use? I believe it will. One dealer in Washington told me he would pay three cents per pound more for the 4x5 plain-section honey than for the old-style sections. Indeed, I was offered two cents per pound more, for 5000 lbs. of clover honey, to be delivered next fall, than I have been receiving of late for my best grade of honey, if put in plain 4x5 sections. In New York I inquired of Mr. Segelken for his plain-section honey, that I might compare it with that in old-style sections. He said he had very little left in plain sections, as such lots were picked up first by retail dealers, who preferred them to the old-style sections. I found the same true in Albany, N. Y., where I stopped to look over the honey. As these retail dealers are not in the supply business I thought their opinions worth recording.

I believe the honey-section of the future is likely to be tall rather than square, and thin rather than thick, and plain rather than old-style, as such seems to best suit the instincts of the bees and the demands of the honey-trade.

Middlebury, Vt.

[There is, perhaps, one factor referring to the 3⅝x5 and 4x5 size of section that you have not taken into consideration. As you will recall from sections you saw while here, the cross-cleat, or that portion of the fence bearing against the uprights of the section, has a good deal to do with the filling of the section itself. All supers sent out last season, taking sections 3⅝x5, had cleats on the fences *½ inch* wide. On the other hand, all supers taking the 4x5 had cleats on the fences only *¼ inch*. The width of the cleats alone might make all the difference between the filling of the two classes of boxes. This difference between the wide and narrow cleats was so marked that we have this year decided, as you may remember, to make cleats on *all* our fences narrow instead of wide, as last season.

But aside from the matter of width of cleats to fences, it is possible that the 4x5 section has some advantages distinctly its own. Read R. C. Aikin's article, just following.

As we make supers to take both kinds of sections, 4x5 and 3⅝x5, it does not make a picayune's difference to us which we sell. They are both supposed to hold a pound; but the larger one is only 1⅜ inches thick while the other is 1½ inches.

I am not at all surprised that you found a decided demand for honey in the plain sections in the markets you visited, and that you found that such honey would bring a higher price. Some of my friends have thought that I was over-enthusiastic, and made stronger claims for the sections a year ago than subsequent developments would warrant. Dear me! I was not prophesying, but telling only what bee-keepers of long experience had told me. It is no little satisfaction for me now to see those same statements verified by so careful and conscientious an observer as yourself.

It is no little regret to me that we are unable (and it would be unwise if we could) to publish *all* of the unsolicited testimonials in favor of plain sections. The evidence we have already given ought to be sufficient. But there are always some who will be doubting Thomases, even then, for "none are so blind as those who will not see."

Here is the article from R. C. Aikin, that I have taken from the *Progressive Bee-keeper*. With what is said above by Mr. Crane it comes in very nicely.—ED.]

TALL VS. SQUARE SECTIONS.

Why the Former are Better Filled out.

BY R. C. AIKIN.

[I have known that the tall sections seemed, apparently at least, to be filled out a little better than the square ones, under the same conditions; but I never knew all the reasons *why*. Friend Aikin has offered the best explanation of any thing I have seen. The italics are mine.—ED.]

I favor a section 4x5 inches, and to stand on end, or 5 inches deep. Such a section will finish nicer than a shallower one. About 20 years ago I used a section 5x6, made of four pieces, the sides about 1¾ wide, and the top and bottom bars enough narrower to make the bee-entrances. Since those days I have had more than 100,000 4¼x4¼ sections filled, and never were the latter as nicely finished on the average as were the former. The reason, however, was not all in the size, but was largely due to the construction of the section. Those 5x6 sections were sawed out and of four pieces (to be nailed), the top and bottom the same width their entire length, or the same in width as the thickness of the comb in the section. The more modern one-piece sections have the bee-entrances scored out so tops and bottoms are narrow in the middle part, but round out to the full width of the sides when within ½ or ¾ of an inch of the corner. The top-bar that is just as wide as the thickness of the finished comb that is attached to it is much easier for the bees to finish to. *Just look at any modern one-piece section of honey, and see how the finish is worked out even with the narrow part of the section top, but dubbed or rounded off when it comes to the wide part*, and you will at once comprehend that the top narrow its entire length will finish the nicer of the two.

Before the adoption of the 1-lb. section by bee-keepers I used many larger sizes, and I believe I know that the larger ones made as before described finished nicer than the 1-lb. size. In addition to the better finish caused

Digitized by Google

by the different construction of the top and bottom bars, the proportionate depth has something to do with it. The bees in building a comb are inclined to stop the downward progress before attaching to the bottom-bars, leaving a space or passage between the bar and the comb. They evidently do this instinctively. Look into any box hive, and you never find the combs attached to the hive bottom unless the combs have settled after construction, causing them to rest on the bottom, when of course they would fasten, as they do all surfaces that touch. Again, look into any brood-chamber in which the combs have never been tiered up above another set, and but few are attached to the bottom-bars. Not only are they not attached to the bottoms, but almost invariably are the corners rounded more or less. Now apply this to sections. Suppose a section were only two inches deep, do you not at once comprehend that, if a space is left between the bottom-bar and the comb, and the corners rounded, there could be but little more than one inch of the comb edge attached to the uprights? *Now increase the depth of the section, and every bit of the increased depth will be attached. The deeper the section, then, the greater the proportion of the comb that is attached to the wood.* This is another reason why I want my section deeper.

I think I hear some one—may be Doolittle will do it—say that the deeper section will not be finished as quickly as the shallow one. Let us reason a little on that. Any one who has ever observed comb-building knows that combs *always* progress downward *much* faster than sidewise. Hive a swarm on starters in an L. frame, and, if a small swarm, a comb will be started down, and reach the bottom-bar about in the proportion of 5 or 6 inches wide to 8 in depth. *The universal rule is that in comb-building the downward progress exceeds the sidewise in a proportion of about 3 to 2.*

If, then, comb-construction goes on in this way, a section that is as wide as deep will be finished down the center before it is at the outer edges. This will be made plain by looking at combs in all stages of progress.

Has not every apiarist who has used the L. frame, or any long and shallow one, noticed how slow were the ends and lower corners in being filled and finished? The same thing can be seen in the working of full sheets of foundation in either brood frames or sections, the work progressing much in the form of one's hand when suspended with the fingers downward.

It is quite evident, then, that a section, or brood-frame either, in which the width and depth are in proportion of 2 to 3, will be filled with comb and finished quicker than when the width is equal to or greater than the depth; the greater the width in proportion, the more uneven the work. So true is this that it becomes a source of much aggravation in getting combs well built out to the ends of L. frames, especially with weak or moderate-strength colonies in full-sized chambers. I say this after having used brood-frames ranging in size from 4¼ deep and 17 long (the L. frame being the longest I have used) to 11 in width and 14 deep, and many intermediate sizes. Also sections 5¼x6¼, 5x6, 4x5, and 4¼x4¼. Some of these were used the short way up and down.

Because of this feature of comb-building, i. e., that they build downward more rapidly than sidewise, a section or frame slightly deeper than wide will be finished as promptly as one of same capacity as wide or wider than deep. More than this, the deep and narrow section or frame will be better attached and finished at the sides. A section 4¼x4¼ with the comb attached to the top and both sides clear down, gives, in round numbers, 12¾ inches of attachment, while a 4x5 similarly attached to 3 sides, gives an attachment of 14 inches. A 4¼x4¼ section equals 18$\frac{1}{16}$ square inches, and 4x5 equals 20 square inches. Thus the 4¼x4¼ section has nearly 2 square inches less comb than the 4x5, and 1¼ inches less attachment, and ¼ inch more detached comb, premising, of course, that neither is attached to the bottom.

Considering, then, the better attachment and better finish of comb, I prefer a 4x5 section. Having a section so deep, and the super 4 sections long, I can have my brood-chamber only 16 inches long, and that is why in a former article I spoke of this length of hive. A close-fitting closed-end frame 5x16, and a 4x5 section, will both work in the *same* chamber; thus a super and brood-chamber part may be identical and used for either, save in the inside furniture.

PLAIN SECTIONS A SUCCESS.

Better Filling and Higher Prices.

BY I. A. WOOLL.

I have been reading with much interest the articles pro and con relative to the new fence and plain sections as sent out by The A. I. Root Co last season and have concluded to give our experience and opinion relative to them.

We were among the unfortunate ones who were a little too late in placing their orders for supplies last season, and, consequently, we did not get our first installment of the new fixtures until late in June, and at a time when all our hives were provided with the old-style sections; but as fast as they were filled we replaced them with the new plain sections and fence separators. These were put on too late to get a fair trial, for our white-honey season was then nearly over, and we had no buckwheat or other fall honey on account of a drouth that prevailed in our particular locality at that season. However, we received four or five well-filled cases of basswood honey in the new sections; and to say that they were nice would be putting it lightly. It was a real pleasure to open those crates of honey and note the difference between them and the old-style section in regard to freedom from propolis and consequent ease of cleaning. With the old-style open-top section we noticed that the bees always stuck a wad of glue at the point where the slot came in contact with the

Digitized by Google

separator, and this was always hard to remove, because it was so near the honey in a position hard to get at without injuring the honey with any scraping-tool we might use; and we generally found it necessary to use the fingers in removing it. But, presto! when the fence was loosened from the row of plain sections we found but little propolis adhering to the section, or separator either, and one motion with a knife would clean a whole side of the section clean; and, indeed, it would pass as clean sections in many places with any cleaning at all; and we noticed this—that the aggregate of propolis used in the entire crate was fully 50 per cent less than that in the old-style section case with plain separators.

Now, if the time of our little friends at the season of gathering honey is worth any thing at all, it seems to me that here is a saving in that the labor employed in gathering the propolis could be used in collecting more of the coveted sweets.

Well, we had two 24-section crates of the tall sections, 3⅝x5x1½ plain, which we took to the grocer, thinking we had something a little nicer than had ever been taken into our town. We took a 12-lb. case in and asked what they could pay for nice white honey. "Well," he said, "it is worth 9 cts.; but we are not in need of any just now." I told him I should like to show him what I had, and began setting them out; and he and the few customers in the store began gathering around and uttering exclamations of surprise at the beauty and perfectly finished appearance of the new sections.

"How much have you like this?" said he.

"Four cases," I said.

"Well," said he, "I guess I will take what you have at 9 cts. per lb."

I said I should have to have 10 cts. for such nice honey as that this year.

"Well," he said, "bring it in; and if it is all like this I will pay you 10 cts."

When we went out to get the other three cases another grocer had got his eye on the honey through the glass cases, and wanted to know if it was sold. I said it was.

"What do you get for it?" I told him.

"Have you any more like it?" he asked.

I explained that this was simply a trial of this style of honey-package, and that it was all I had this season. He tried to get me to let him have that honey at 10 cts., or a part of it; but, of course, I had to refuse, for I knew the other man would take it all, which he did.

Well, later we sold a quantity of honey to The A. I. Root Co., and by their direction shipped it to the Columbus Commission and Storage Co., Columbus, Ohio. When packing this honey we put in one case of the new plain sections, 4¼x4¼, and marked them so on purpose to call the attention of the dealer to it, and with the result as given in Sept. 15th GLEANINGS.

As to the relative value of the two cases (old and new) for the greatest yield of weight of comb honey, we shall require another season's trial to decide definitely; but we are of the opinion that the easy access from one section to another will increase the production.

On the whole we are thinking quite strongly of putting the new fixtures in all our cases the coming season, with the possible exception of one or two for comparison.

Elsie, Mich., Jan. 7.

THE FENCE-SEPARATOR SYSTEM.

Fence Supers Entered Sooner.

BY M. A. GILL.

Perhaps a few words giving my experience with the plain section and fence separator would be appreciated by a few of the readers of GLEANINGS.

First, I will say I was much interested in the fence-separator system when it first came up for discussion, and was amused at some of the arguments that came out setting forth that the system would not work; and when we ordered 20,000 no-beeway sections and 700 supers with fence separators, several of the wise ones said the same as others had said in the journals, that it was impossible for loaded bees to pass through the spaces.

I had spent too much time during the previous twenty years in studying, not to know that the spaces were ample, and that the system was practicable, else I should not have ordered so many to start with. I soon saw that, to raise honey by this system, it was necessary to have hives level. This has been my hobby, as I never use separators, and would not now if I could not have the fence.

One of the system's faults is that, if any mishap happens to one section, there are generally three sections spoiled; for if a starter breaks down, the bees will build through the fence on each side and spoil two more. So I said there are two good features, for any thing that will make careless people set their hives level, and securely fasten all starters, is a good thing.

I will say that, while casing 400 cases about equally divided between the no-beeway and the old style we didn't have enough crooked or broken honey for table use for two families.

The past season in Western Colorado was a poor one to fairly show up any system for comb honey. But I could readily see that the bees would occupy the supers much sooner than with the old style, especially if separators were used, and that the outside sections were, many times, finished first, which would reduce the unfinished-section business to the minimum.

With regard to the shipping-cases needing separators, my experience was that they would stand shipping better than the old style, as the honey was *always* attached to the bottom of the section.

While speaking of shipping-cases I think we should have a 24-lb. case for the no-beeway sections; for when you sell a man a regular 24-lb. case, and tell him there is 32 lbs. in it, he will say that can not be, for it's full with only 24 lbs. in it. It at least makes an explanation necessary, and you know the average grocer who has sold a few cases of honey can tell you more about honey than you ever dreamed of;

Digitized by Google

and if he takes your 32 lbs. of honey in an old-style 24-lb. case he will want the extra 8 lbs. at a discount.

I could say much more in favor of the fence-separator system for comb honey, but will only add this: In my opinion the system has come to stay, for, in every manipulation, from start to finish, it is preferable to the old style.

In this dry climate the shrinkage is more than the wedge takes up. But I prefer to wedge on both sides with upright wedges, at each end and middle. This gives the Pettit system, or loafing-ground, to *my* satisfaction at least.

I like your changes for 1899 in the fences, and the system now seems nearly perfect. I have been told that I would use any thing that the Roots would make, and call it all right anyway. This I deny; for you have manufactured two things, and sent them out to the trade, that I would not use. One was the most provoking thing I ever saw—your Clark cold-blast smoker. The other is or was the most comical thing I ever saw, and that is your little strainer sent out with extractors. I remember poking one of them into the bung of a barrel in Kentucky, and filling it with thick yellow poplar (tulip) honey. That was ten years ago, and I don't know whether it has all run out yet or not. You used to send them out that would hold about two pounds. I heard a man say he filled one of them (dry) and hung it up in his cellar, and it didn't even leak for two days. I will say, however, that the honey was alfalfa that would weigh close to 13 lbs. per gallon.

Boulder, Colo., Feb. 6.

HIGHER PRICES FOR PLAIN-SECTION HONEY.

I had your plain sections in use with fences, and must say that I am pleased with them, particularly the 3⅝ x 5 x 1½ sections. They were very nice, better filled than the old style, and made a great deal better show—so much so that they brought me a better price, and they sell much quicker. I am so well pleased that I will use none but plain sections this season, and have sent my order for such.

Alphin, Va., Feb. 6. P. I. HUFFMAN.

ECHOES FROM THE CALIFORNIA STATE BEE-KEEPERS' ASSOCIATION.

Ninth Annual Session, Jan. 11 and 12.

BY J. H. MARTIN.

Although there was an encouraging rain of two inches the day previous to the meeting, there was a very light attendance. Even some quite extensive bee-keepers who live within easy distance, or even in the city, were conspicuous by their absence.

President C. A. Hatch, at last accounts, was feeding four coal-stoves for comfort in Wisconsin, and, lacking some 2000 miles of being available, Mr. C. H. Clayton was elected president *pro tem.* The treasurer, who some weeks ago was reported as lost in the wilds of Oregon, and for whom there was some solicitude, turned up in due time. Secretary McIntyre felt much relieved when the man and the funds—especially the latter—came in sight.

The first session was held at 2 P. M., and the first paper was by Mr. Geo. W. Brodbeck, on "The Bee-keeper of the Future."

The secretary read a paper sent in by Mr. W. A. Pryal, of Oakland, subject, "The Gigantic Honey-producer, the Eucalyptus."

This paper brought out a lengthy discussion, and it was agreed that, among the many species now in California, *Eucalyptus robusta* was the species eminently adapted to the needs of the bee-keeper. The bloom is the most profuse from November until April, and just when needed to help the bees through the winter.

Mr. Mendleson led quite a lengthy discussion upon feeding. He had fed over a ton of sweets. He preferred to reduce the number of combs, and feed so as to crowd the queen to a small space for breeding, otherwise quite an amount of the stores would be used in breeding a useless number of bees.

The meeting on the 12th was, during the morning session, devoted to foul-brood laws and the treatment of the disease.

Mr. McNay, of Portage, Wis., was in attendance, and gave an interesting talk upon methods of selling honey, the proper package to use, and, above all, packages free from rust and dirt.

He finds that extracted honey is gaining in sales, and for table use. Some of his customers called for basswood honey solidly candied. He found that these salesmen had a stand in a conspicuous place in their store window; the barrel of honey was placed thereon, the hoops cut off, the staves removed, and the honey was chipped off in chunks in size to suit the buyer.

Mr. Lambkin, of New York, was in attendance, and gave a few ideas respecting sections and fences. He said they had been in use in his portion of the State for 20 years; he was strongly in favor of their use.

Mr. Wilkin addressed the meeting upon the subject of co-operation.

Mr. Wilkin was elected president for the coming year.

Mr. J. F. McIntyre was re-elected secretary. The present treasurer continued.

There was an estimate that fully 50 per cent of the bees in Southern California had died during the past dry season.

It was with regret that we learned of the death of J. P. Israel (Skylark). He was one of the veteran bee-keepers of California.

Samples of honey were on exhibition from Northern California, Oregon, and Washington.

Mr. Farr, who has apiaries in Acton, Cal., was present. Mr. Farr is one of those bee-keepers who migrate during a dry season. His migration this past season took him to Utah. Mr. Farr was quite reticent on the subject; but we learned from other sources that the cost of moving a carload of bees to Utah was $400, and Mr. Farr produced honey enough to sell for $2400. This proved to be a good move, even if it was a long one.

Digitized by Google

Should the coming season prove a dry one there will be many more long moves. Some bee-keepers are looking over into Inyo Co., and others into Arizona. We have an abiding faith, however, that it will rain to the required amount.

SWEETWATER APIARY.

Honey Flora in the Region of National City, Cal.; an Ideal Extracting-house; Staple-spaced Frames a Success; the Root Shipping-cases; a Suggestion.

BY ARTHUR HANSEN.

Mr. E. R. Root:—Pursuant to your request I hereby give a brief sketch of my Sweetwater Apiary. The site is just over the hill east from "Palm Terrace," the *bon ton* of National City, inside its corporate lines, between the Sweetwater River bottom and famous Paradise Valley, about three miles from the Bay of San Diego. Its resources are: First, pollen from the willows about Christmas; a warm January gives plenty of nectar from this source; and from the blue-gum (eucalyptus) I have had considerable brood by Feb. 1. Orange-bloom is best here in February, March, and April. The bloom of 1897 was the most profuse, with largest yield of nectar. My bees worked so strong on the old orchards of Paradise Valley that people from there called my attention to the wide path they maintained. Wild alfalfa blooms at the same time, and is very good when it does yield. I noticed best yield on the coast in 1893. It springs up where a fire has run over land, and loves south and west exposure; wild buckwheat is the same in this respect, which fact Rambler and I noticed in 1892. White sage and wild buckwheat bloom in May, June, and July, followed up by goldenrod and tarweed. The latter is hard on comb-honey producers. Some sweet clover grows along the river, but I do not know much about its yield. In 1897 we had our first material aid from the sugar-gum, of which so many line the streets of National City. Bloom is from June on.

One of the photographs shows the two-story honey-house. It is 10x10, matched lumber, two sections to each side, bolted together, high enough to stand up in, good floor, 10-oz. duck tent over a frame on top, frame in sections, building painted with oil and ocher. The two spring doors have double-acting spring hinges, so the cart pushes open either way. Upper story contains four-frame Stanley reversible extractor, and R. Wilkin's uncapping-box, with a Wilkin strainer between the two, and a workbench. The strainer empties automatically through a tin tube into the tank below, which stands high enough to admit a 5-gallon can under the faucet, capacity 1200 lbs. The cart takes combs crosswise; space on bottom for loose pieces of comb, two sliding covers on top; sides can be removed so that the platform can be used to convey hives to the wagon during moving. The sun extractor is California style, with burlap frame for catching the wax, and compartment below for the honey. I think it leaves more dross than a Doolittle.

I started in with eight-frame hives, running for comb honey, in 1889. In changing over to extracting I got nine-frame hives; then I had some 11-frame made at the mill. These I run mostly three-story, the queen ranging over all. These give me the best results. After getting a Barnes saw I settled on 10-frame hives, parts interchangeable; handhold cleats form the rabbets and help to tie the sides, which fit into rabbeted ends. A 1½-inch hole in each end, protected by a galvanized flume gate, with slide, affords ventilation at pleasure.

When starting in the bee business there were no Root goods to be had on this coast, and for comb honey a frame was put on the market enough shorter than the Langstroth to do without the section-holders. I use this frame

Digitized by Google

with No. 9 double-pointed tacks, 4 to each frame, at opposite sides, half way down the end-bar, and on the top-bar just inside the shoulder or rebate.

The top-bar is 1⅛x⅝, flat, with saw-kerf for foundation, resting on tin rabbet. End-bar is 1⅛x$\frac{5}{16}$, and the bottom-bar is ¾x¼. Spacing is 1$\frac{5}{16}$. Frames of this size are now used to some extent in the county, and I have been requested, before this, to give a description of the same.

For Dr. Miller's benefit I would say that I have used the stapling device since 1892, with good results, in the brood-chamber.

In my travels through Oregon, Washington, and Idaho last summer I handled a great many Hoffman self-spacing frames, and I am convinced now that the amount of propolis used in my section of Southern California is not sufficient to offset the advantages gained by their use, if they are Root's or any other first-class make, in pine. Some Washington dealers use cedar, but it is too soft to stand the wear. V edges dent in and split off.

hill is that of Mr. D. K. Horton, of Boston, on Palm Terrace.

All new hives are painted a straw color, with ocher and white lead. I use queen-excluders under drone comb; but Peter Lux, of Encinitas, Cal., advanced an idea that I want to try another season; namely, to get the combs built out wider by continual spacing until the cells are too deep for the queen to lay in. Has any one else tried this? I aim to keep down increase by making very liberal use of full sheets of foundation in the brood-chamber, using the brood in upper stories, in lighter colonies, and making nuclei to care for extra queens. Last year was a hard one; but Mr. Herbert Veall, who runs the apiary, writes me that he hopes to pull through the 95 stands that he reduced the apiary to in the summer. Mr. Veall expects to carry out my plan of moving to the mountains for a second crop, if the season warrants it this year.

Just a word in regard to comb-honey shipping, from a dealer's standpoint. While in Spokane I saw some Yakima comb honey

My hives are in groups of five, with the corner hives at an angle, and alley for cart at alternate rows, with the hives facing out.

The tree in the corner is a mountain mahogany, and the brush is a scrub pine. A lone elder-tree stands out in the stubble-field back of the honey-house. The dark spots on the side-hills are cactus, chollas, and brush, with beautiful homes in the distance.

In the other photo I am introducing the first Italian queen of a batch of 16. Her majesty is under the wire cage on hatching brood. It was in the fall of 1897, and I am making some increase besides superseding undesirable queens. One full and one empty mailing-cage and a wire cage show in front of the hive. A Corneil smoker stands watch, and the brush in the pail of water is made out of old rope. The short putty-knife on top of the upper story is *my* hobby for an indispensable tool.

The residence and orange-grove over the

come in, crated as per directions in Root's catalog. In addition a cleat was nailed across the ends of each cover, thereby preventing splitting in opening up, and adding a certain spring to each case while in transit. I think supply-dealers ought to add this cleat, and California comb-honey producers and shippers should follow Root's directions, as their product (that of the California honey-producers) is losing ground up here on account of the breaking-down.

Wallace, Ida., Jan., 1899.

[Every thing about this apiary betokens neatness, and a general system calculated to produce the largest results with the least labor. The comb-cart and the extracting-house, the upper story of which is used for extracting and the lower part for storage, are evidences of these. Where the building can be on the edge of a side-hill, allowing the stor-

Digitized by Google

age-tank to be under the extractor, the arrangement is as nearly ideal as any thing can be.

Mr. Hansen does not say any thing about his method of introducing, but I should judge by the engraving that he uses something very nearly like the Peet method—a plan whereby the queen is caged right on the comb, her liberation being effected by the bees gnawing under the cage and letting her out themselves.

The shipping-case that we make has been constructed after consulting bee-keepers and commission men alike. If there is further improvement we can make on it without increasing its cost too much we should be glad to incorporate in. Cleating the covers, as has been spoken of, might be objectionable in some markets, and at the same time increase the cost of the cases. If there are others of our subscribers who think it would be an improvement, we may think best to adopt it.—ED.

CUBAN HONEY AS COMPETITOR OF AMERICAN HONEY.

The Effects of Glucose on Honey Markets; Writing to Members of Congress in the Interest of a National Pure-food Law; how the Dairymen Fought Oleomargarine; a Valuable Article.

BY C. DAVENPORT.

In GLEANINGS for Dec. 15 a subject is touched upon that is of vital interest to all producers of honey in the United States. I refer to honey from Cuba. If extracted honey can be produced there for two cents per pound which is superior to that from white clover (and I can see no reason to doubt it), it is probably true that there is no reason why comb honey of the same quality can not be produced proportionally cheap; and if the import duty is removed it can be laid down in any eastern city by boat at a very low cost compared to what freight by rail would be. It will be noticed that I have referred to Cuban honey as being superior to white-clover honey, and this will hold true in a large way if its only difference consists in having a milder flavor, for many think that from clover has almost too strong a taste; and, aside from its quality, from what has been said in regard to the matter it is to be inferred that Cuba is capable of producing immense quantities. In fact, as I understand it, California would be out-classed in this respect; for while that State produces immense crops it is also, like most if not all other States, subject to failure; and I believe a failure of the honey crop in Cuba is something unknown. But if the honey from another area, equal to California in productiveness, is thrown on the markets of the United States it does not require much imagination to see what an effect it would have on prices. As for our having patriotism enough to receive this Cuban honey, this is absurd; and in my opinion it is not patriotism, but treason; for patriotism is, as it were, if I am right, the welfare of one's country and its people; and if any are troubled with an excess of it in the former respect, let them reflect that this country is, and probably will be for many generations, heavily taxed on this account. But, aside from all this, we who depend entirely or mainly upon bees for our living know that, if prices for our product go much lower than they have been the last few years, the bees will have to be given up, and our attention given to some other pursuit. The prices of honey have of late years been steadily declining; and while there are undoubtedly a number of reasons for this I beleive one of the main ones is adulteration; and this is becoming (in fact, already is) a great curse to this country—not only in regard to a good many kinds of food, but a great many other products as well. The one article of glucose alone is doing great harm in a financial way to those engaged in our pursuit; for there is, I think, more of this produced annually, and sold mainly for food purposes, than the entire annual product of honey. And, aside from the money loss to bee-keepers and others, this stuff, I think, does much harm in other ways; for many who consume much of it may ruin their health; for, while not necessarily injurious itself, I understand that acids that are used in its manufacture remain in it in sufficient quantities to make it so in such grades as are mainly used for commercial purposes. If we can get the right kind of national legislation in regard to pure food it will in a financial way largely, perhaps, more than offset the effect of any amount of honey that can be produced in Cuba. The Brosius pure-food bill, or any other of like nature that may in the future be brought up, should receive the support of all bee-keepers. Let the Member of Congress from your district know that you are interested in this. Write him to this effect. A few words only are necessary; for instance, something like this:

Dear Sir:—I and others here are much interested in the pure-food bill, and we hope you will do what you can to have it passed.

Yours truly,

____ ____ ____

A postal card will do. The only address necessary is his name and the words "Member of Congress, Washington, D. C." Better than this, get up a petition—something similar to this will do:

Dear Sir:—Myself, and those who sign this, trust you will do what you can to have the pure-food bill become a law.

Yours truly,

C. D.

If it is written and signed with a lead-pencil it will answer, and three-fourths or more of the people in almost any community would be glad to get a chance to sign a petition of this nature, and that petitions or even individual expressions from their constituents have great influence with Members of Congress. There is no question that this is as it should be, for they are sent to Congress by the people to work and make such laws as will be of the most benefit to the people as a whole.

As an instance in support of this I might mention some facts in regard to the great injury that threatened the dairy interests through

Digitized by Google

oleomargarine. Indeed, through it much injury had already been done when dairymen arose, and, through letters and petitions to Congress, they succeeded in getting a law passed which did not prohibit the sale or manufacture of oleomargarine, but forced it to be labeled and sold for what it is, and this was sufficient; and the same would be true in regard to glucose if any food product that contained it had to be plainly labeled so that people would know what they are buying and eating; and although comb honey can not be adulterated, the adulteration of extracted does in an indirect way greatly injure and affect the sale and price of comb honey. One of the many ways in which it does this is because it lowers the price of extracted, and this causes a larger amount of comb honey to be produced than would otherwise be the case. This naturally has a tendency to lower the price of comb; and much of the adulterated stuff sold for honey is so vile that but a small proportion is sold to what there would be if it were pure. This causes what I think might be called under-consumption, and helps to lower the price of both kinds.

No bee-keeper should lack interest in this matter because he has a home market for his product; for in a short time bee-keepers in his locality may increase, and his home market become glutted to such an extent that he will be forced to depend on the general market for the sale of his crop. It takes but a short time to oversupply any rural home demand, when others near get started in the business. Besides, city prices as a rule have considerable influence with prices that can be obtained at or near home.

I have now very imperfectly expressed what I should like to say on this subject; but perhaps it will cause others more able to lay the matter before bee-keepers in such a way that it will receive some of the attention that its great importance warrants.

Southern Minn.

[It is impossible at this time to form any idea of the probable effect of Cuban honey on the American markets. If the present duty should be removed it is easy to see that it might be a serious competitor, because the Cuban bellflower honey would doubtless compete in flavor and color with any sweet clover, and might in some markets be taken in preference, especially if it were sold for less money, as it could be with the duty removed; but for the present, at least, I have no fear along that score. So far Uncle Sam has made no move to annex Cuba; and unless he does, there is no reason why the duty should not remain on Cuban honey; and even if annexation should take place it does not necessarily follow that Cuban honey will come here free.

But glucose—yes, that is the real competitor we now have. It is a competitor because it enters so largely into many of the so-called strained-honey samples purporting to be pure stuff. Sometimes I feel almost discouraged while in the markets in the different cities, when I call for strained or extracted honey. If I call for extracted, the clerks hardly know what I mean; but if I ask for strained — oh, yes! they have "plenty of it." In nearly all the large stores I have been in, where such goods have been on sale, I seldom find pure honey put up; and it does not take a chemist, either, to decide that the goods are adulterated—almost pure glucose. Let those of our friends who fear we are making too much noise on the subject of adulteration go into some of the large grocery and department stores in the various cities. Let them ask for "strained honey," and then see what they get. If they do not find exactly what I have found, glucosed honey, in five cases out of ten, then I shall be surprised. This stuff is usually put up in bottles and tumblers, and can be retailed in single packages at a good deal less than the average bee-keeper can afford to wholesale pure goods in large lots. As friend Davenport says, it is these goods that are the real competitor of pure extracted honey. In the first place, they cut down the price of pure honey; and in the second place they disgust consumers with *all* honey put up in liquid form, whether adulterated or pure. It is like burning a candle at both ends; and unless we can do something about it pretty soon, the average bee-keeper, I am afraid, will find there is little profit in producing extracted honey. As it is, no one complains that his profits are *too* large.

Glucose is cheap because it is used so extensively in the liquor business. Glucose and poor beer go naturally together, and the twain are the enemies of the honey business.—ED.]

TWO-STORY EIGHT-FRAME LANGSTROTH VS. TEN-FRAME QUINBY.

Arguments in Favor of the Former.

BY DR. C. C. MILLER.

I have always felt just a little anxiety as to whether giving room with Langstroth frames in two stories would answer precisely the same purpose as the same amount of room in one story with larger frames. Mr. Dadant's silence on that point has been somewhat marked, and I've been watching for a long time for some expression from him upon the subject. On page 871 he puts himself squarely on record as preferring the one-story with the large frames.

I have some fear that he is right, mixed with a strong desire to believe him wrong. That desire comes from the fact that it is so much more convenient and easy to have the smaller 8-frame hive when it comes to handling, especially for one who takes his bees back and forth to an out-apiary or puts them in cellar. So, by way of whistling to keep up my courage, I'll attempt some reply.

The footnote has replied to the argument that dummies belong only to the large hives. In hives with frames at fixed distances, such as all my newer hives are, the dummy is not only a convenience but a necessity.

As shown by the editor's footnote, the two-story can be limited to exactly the same capacity as the one-story with larger frames. But I'm

Digitized by Google

not sure the editor has any great strength of argument when he says, "When you add *one frame at a time* to your big colonies, do you not thereby make a great amount of labor?" For with the big hive Mr. Dadant *can*, if he so chooses, give all the room at once, just as it can be given with the small hive. That is, he can give the full quota of frames at the start, thus making really *less* work than if he had to add a second story.

I think that, when a second story is given below, the bees can and do increase the size of their brood-nest just as gradually as if large frames were added at the side one by one, with the exception that they hesitate a little to make the first start across a bottom-bar, a top-bar, and space between. Remember that the bees don't make their first start in the lower story by filling one comb from top to bottom; but as soon as a little start is made at the upper part of one frame a start is made at the tops of its neighbors at either side, the bees preserving the spherical form of the brood-nest until the lower story is pretty well occupied.

In the saving of heat at a time when it is very important to save it, it seems to me the two stories of smaller hives have the advantage. Granted that you can add one frame at a time with the larger hive, closing up each time with the dummy, the same thing is done automatically with the two-story, requiring no labor on your part. When a second story is given below, no extra task is thrown upon the bees to keep warm any space they do not occupy. Isn't the upper story just as warm standing on an empty lower story as standing on a bottom-board? Isn't it a little warmer? for when standing on the bottom-board the wind has a more direct chance at the bees. As they move gradually downward they warm up the space just as fast as they need it, and no faster.

"But if you are aiming to raise comb honey," says Mr. Dadant, "as the queen goes downward, as a matter of course the bees will fill the space above them with honey as the brood hatches, and the result will be from twenty to an indefinite number of pounds placed in these combs before the sections are touched." That's a strong point in favor of the single-story, *if it's correct*. I'll try to show twice that it isn't correct. When the time comes to put on supers (and that's just a little *before* any surplus is stored) I take away the lower story, leaving eight frames of brood, but no "twenty to an indefinite number of pounds placed in these combs before the sections are touched." It's possible I might do better to leave more room, but I'm not sure of it, and I haven't made a big success of leaving two stories through the harvest. I think it's clear that Mr. Dadant's statement is not correct as applied to my practice. That's once.

Now as to the practice of those who allow the two stories to remain. I've had queens that would keep 14 Langstroth frames filled with brood. Friend Dadant, don't you see that, for such queens, your 10-frame Quinbys are too small? Why not come over on my side and advocate larger hives? But I'll not insist on that, for such queens are probably exceptional. Of course, the lower story can be closed down to any size desired; but even if the whole sixteen frames are used I think it may be shown that Mr. Dadant has overestimated the case a little. There is some confusion in the matter of comparing frames. The editor counts 10 Quinby frames as equivalent in comb surface to 12 Langstroths. In Dadant's Langstroth 9 Quinby frames are counted equal to 12 Langstroths, which is nearer the mark. Thick top-bars have made a little difference in the capacity of the Langstroth. I have just measured one of my frames, and it has a comb surface of 144½ inches. The Quinby has a comb surface of 189 inches. That makes 10 Quinby frames contain a little more than 13 Langstroth frames. If 10 Quinby frames are right, then 16 Langstroth are less than 3 frames out of the way. I think that, instead of that being too much by "twenty to an indefinite number of pounds," it would be only from an indefinite number of pounds up to twenty.

Mr. Dadant says he has a larger super surface. True, and that's a good thing. But it makes the supers heavier to handle, and that's a bad thing. And when it comes to counting up the number of unfinished sections at the close of the season, the advantage is on the side of the smaller super.

As I said in the beginning, I'm afraid the larger frames in the single story are a little better than the smaller frames in two stories; but if I can possibly help it I'm not going to believe they're enough better to balance the great advantage of having the lighter hives to handle.

Marengo, Ill., Dec. 8, 1898.

[I agree with the doctor, because all our hives are eight-frame, and because that is the way I *want* to believe. But, joking aside, the eight frames are much handier than the one big hive.—ED.]

RAMBLE 161.

Bicycling in the Mountains.

BY RAMBLER.

From any point of view in Northern California it is found to be a strictly mountainous country. Scott Valley is merely a small space upon the margins of Scott River where the land is fertile and could be tilled, while surrounding this valley on all sides there is nothing but mountains.

Whoever has passed over the northern route of travel will remember how the line of railroad is hedged in by mountains, and how few the tillable places are; so from Scott Valley west to the ocean, a distance of sixty miles, it is mountain peak and canyon, a wild and silent country.

The KlamathRiver drains all of this country, and its course through the mountains is marked by gorges of sublime magnitude. About thirty miles west from Scott Valley we

Digitized by Google

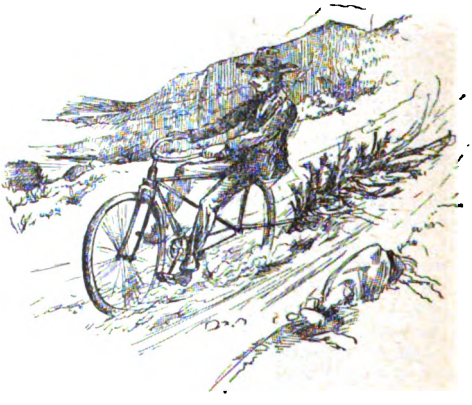
find Marble Mountain, a region but little known, and accessible only on pack animals, but in point of grandeur the scenery approaches that of the Yosemite.

Owing to these mountain barriers there is no way of getting to the coast except over these pack-trails; but directly west from Scott Valley and Siskiyou Co. we find in the extreme and obscure northwest corner of the State the county of Del Norte. The only convenient route whereby to get into this county is by water from San Francisco to Crescent City, the county-seat. I understand, however, that around said city, and in the nearby towns, is a good location for bees. Alfalfa is grown there, and my informant spoke in glowing terms of the abundance and good quality of honey-dew. This gentleman was not then a bee-keeper, but was engaged in the cattle business; and from his point of view Del Norte would be just the place for profitable bee-keeping. His reasoning was from a cattle-dealer's point of view, and as follows: The owners of cattle in these mountains during the long winter have to pay $6.00 per ton for alfalfa hay. The same cattle could be wintered in the Sacramento Valley for $3.00 p r ton for the feed. The natural supposition of the uninitiated would be that, from an economical point of view, the cattle should be wintered there. The cattle-dealer acknowledges that there would be a saving if the cattle were moved south; but there is another and more profitable end to the proposition. "Here in the mountains," said the cattle man, "we are just half way between San Francisco and Portland, and we command both markets. If the price of beef rules low in San Francisco we ship to Portland, and vice versa."

He thought the same rule would work well in producing a large amount of honey in Crescent City, and shipping the product by water, as the case might be, to northern or southern markets. There would certainly be a great saving in freight rates, for shipping by water is always economical. There is much wisdom in this reasoning; and perhaps it would be well for some of those who are becoming disgusted with the dry seasons of Southern California to make a further investigation.

While sojourning in Scott Valley I made a radical change in my method of locomotion. Whenever I have heretofore been siezed with a bicycle fever it has usually ended in the purchase of a horse and cart; but here the purchase of such an outfit meant the sale of it again in a few weeks; therefore, owing to all of the circumstances, my wheel-fever took such an acute form this time that one evening the mail coach from Fort Jones dropped off a brand-new Cleveland wheel to my address. We became quite well acquainted in a short time; in fact, we became boon companions; and the turns we had whirling along the tortuous roads, through the pine forests, stirring up the crisp pine needles, and breathing to the full the balsamic fragrance, are times and seasons not to be forgotten.

We have roads in Siskiyou County that will give the rider in any conveyance all the variety desired, and my first essays on the wheel were full of thrilling experiences. Just imagine the "thrilling experience" of pushing the wheel ahead of one's self up a steep mountain side, and then just imagine sailing down the other side with a large pine bough attached to the wheel frame with a strong cord, and dragging in an unwilling manner in the rear. This was my only brake, and it worked well, and made the very welkin hide itself in the dust. But experience is a great teacher, and I now have a better brake method. I place the toe of my shoe on the forward wheel just back of the fork, and it gives such control that I can approach the steepest grade without fear.



I have before remarked that this is a great game country. The mountain fastnesses are

Digitized by Google

favorable to the occupation by wild animals, and the hunting population is sparse. In the autumn, bears intent upon securing their daily rations of acorns sometimes stray down to the farming district. One morning the butcher boy, in his rounds between Oro Fino and Etna, ran across one of these derelict bears in an intervening piece of woods. The boy put whip to his horse, and sped on to Etna. The report that a bear was near town set the hunters in motion, and only a few hours elapsed when poor bruin was shot and brought to town.

In my explorations of these wild canyons through which I could ride a wheel tolerably well I expected at almost every turn in the road to see among the big trees a specimen of big game. It might happen, you know, just as it did with the butcher boy.

Having no gun with me at such times, I might be in quite a predicament. Still, my curiosity to see the country led me into all manner of wild places. Aside from rabbits and other small game, a stray coyote would occasionally halt in surprise as I whirled around a bend in the road, stick up his ears, and then scurry away through the forest.

Kitter Creek flows from one of these wild canyons, and in one of its clearings is where the late Mr. Levering had one of his apiaries destroyed by bears.

It is not remarkable that, while exploring such places, and thinking of possible adventure, the senses of the novice should become very acute, and the least unusual noise quicken the pace and give more of a tension to the nerves. And so it happened one day while in Kitter Creek Canyon that I became quite excited as I saw a violent agitation of the bushes to the right, and ahead of me, and presently I caught a glimpse of a bulky cinnamon-colored body. Now, there are cinnamon bears in these mountains, and they are exceedingly fierce; and the immediate inference was that this was one of the varmints. I could hardly stop my wheel without coming in deadly contact, therefore I could do nothing but scorch ahead; but it was not much of a scorch, for the road was sandy. As the animal plunged through the brush I imagined growls, and my hair began to elevate. Oh for a gun! oh for a stray hunter with his trusty rifle! But no friendly aid appeared. All my past life flashed suddenly before me, and my conscience was dreadfully pricked by the sarcastic remarks in which I had indulged about old maids and grass widows, and especially what I had told Mr. Mallow, the Fort Jones bee-keeper, only a day or two before. He inquired of me if that young man Wilder who traveled with me a few years ago was not dead.

"Dead, Mr. Mallow?" replied I; "why, he is worse than dead—he is married."

In this supreme moment I was so sorry I said it; for if Mr. Wilder was worse than dead with just a wife, what must be the condition of Mr. Mallow with wife and eight children? About the time that sorry feeling had taken possession of me the animal plunged across my track. It was all done in a second of time. My wheel went from under me, and I was tumbled in the dust, and at the mercy of the beast. I tremblingly bounced to my feet; but what a relief! Then I picked up my wheel; then I laughed. My bear, when it came into the open, proved to be nothing but a contemptible cinnamon-colored calf. It had escaped from some alfalfa-patch with a long picket-rope attached to its neck; and my wheel, in passing over the rope, and the rope running rapidly under it, nicely tripped the rider. My exertions in the dust caused the calf to continue its headlong career, which I hope is still continued; but I really believe a wheelman was never tripped in like manner before.

But all things have their times and seasons, and the pleasant days I had enjoyed in Scott Valley drew near their ending; and as I contemplated on my journey south I regretted that I had lived so many months near the Oregon line, and had not put a foot on its soil.

"Why," said I to Mr. Levering, one evening, as an inspiration struck me, "what is to hinder me from going north through Oregon to Portland, and from there to San Francisco by steamer?"

"Nothing," said Mr. Levering. "It is only 250 miles. Take your wheel and that calf along, and you will astonish the natives with your fleetness."

Mr. Levering threw in that calf matter as a joke; and as we talked and joked over the matter the idea grew upon me to such an extent that I not only resolved to put a foot in Oregon, but both feet into Washington, and to return south from Seattle.

In accordance with the above plans I left Scott Valley on the 26th of October. My baggage went out in a freighter's wagon while I wheeled out. The last I saw of Mr. Levering he was leaning pensively on his cane while the morning breeze was toying as usual with his whiskers. I crossed the mountain safely, and stopped that night in Yreka.

E. L., Pa.—It would be simply impossible to cross bumble-bees with Italians, because they are functionally different; and, for another reason, they are an entirely distinct species.

F. A. K., Wis.—If your bees have the dysentery in your bee-cellar I hardly know what you can do. If they once get this disease indoors they are pretty sure to die in large numbers before spring. The trouble is, doubtless, due to inferior stores. If you could take away the stores they have, and give them bee-candy, it might help matters. If you had combs of sealed sugar stores this would be altogether better; or if you do not happen to have this, mix powdered sugar and honey into a stiff dough and set on top of the frames; but before doing this I would recommend that you take away the present stores and give them empty combs.

Digitized by Google

GOOD MANAGEMENT OR MANY COLONIES—WHICH?

Question.—I commenced in the bee business two years ago, starting with four colonies, and I now have sixteen. I had intended to increase up to about fifty colonies, and work these carefully and as thoroughly as I was capable of doing, thinking that fifty well worked would be better than more not so well cared for; but in talking with a man a few days ago he advised me to increase to 100 or 150, he claiming that such a number would secure for me better results, with less labor, than would the fifty worked as I proposed. He said the extra labor I would expend on the bees, working as I proposed, would more than buy the extra hives needed, while I would secure more honey in the end by keeping the larger number of colonies. What do you think in that matter? I wish to do that which will secure to me the best results for my labor.

Answer.—There is an idea prevailing with some bee-keepers that more money is to be made in keeping bees by keeping a large number of colonies and letting them largely take care of themselves than there is by keeping a less number of colonies and properly caring for them. Not long ago I received a letter bearing on this subject, which will be right to the point here, the same being from an apiarist of considerable experience, who said that he was going to keep more bees than he had formerly done, and do less work with them, for he believed that double the number of colonies would give him fully as much honey as he had been getting (if not more), even if he did not manipulate them at all. He said that he believed the system of management used by many in securing large yields from individual colonies caused a greater amount of labor and manipulation than there was any use of, and henceforth he would adopt exactly the reverse of the plans he had formerly used, and put more bees into his field, so that he might secure the same amount of surplus as before, with very little labor. All that would be required would be the investing of a little more capital in the shape of hives, etc., and that the "good management" plan would soon be something known only in the past history of bee-keeping. I have not tried to give his words exactly, but I have given the substance of the letter. As this came from a person in whom I had much confidence, and as I was using the management plan, and was and have been recommending the same to be the right way in which to secure the best results, it was but becoming in me to consider the matter a little; and if I was on the wrong track it would be better to become right, and that speedily, especially as my writings might influence others in the wrong direction. After carefully considering the matter it did seem to me that there was one very important item regarding these extra colonies which the advocates of it entirely overlooked, which is great enough to more than pay for the manipulation, so that the investing of capital in more hives for the extra number to be kept is worse than thrown away. The item I allude to is that each of the extra colonies put in the field in order to secure the honey secretion from a given area with but little or no manipulation costs from 60 to 75 lbs. of honey each year to support. Some apiarists who have studied closely claim that no good colony can exist a year without consuming fully 100 lbs. of honey; but that it may not appear that there is a desire on my part to overdraw the matter we will place the amount needed to carry any good colony through a year at 60 pounds. The question then comes to us, "Which is cheaper—a little extra manipulation, or the extra colonies, hives, etc., and the honey which they consume?" Suppose that 100 colonies produce an average yield of 50 pounds each, and by so doing secure all the nectar in a field year by year. This would make 5000 pounds of surplus as our share of the field, while each of the 100 colonies will require 60 pounds, or 6000 pounds as a whole, as their share to carry them through the year. Thus we fail to secure to ourselves one-half of the honey from our field by employing an extra number of colonies. On the other hand, if we employ the management (or economy) plan, which our English friends do, that of making, by thorough fertilization and careful tillage, one acre of ground produce from 50 to 60 bushels of wheat to where we Americans produce only from 20 to 30 bushels, we shall find our statement thus: Eleven thousand pounds is the product of our field; 50 colonies are all that are needed, with good management, to secure it. Then 50 colonies must use 3000 pounds of this for their support, leaving 8000 pounds for the manager. Thus it will be seen that the manager can appropriate to himself 3000 lbs. of honey for his manipulation, and use little if any more time than he would use on the 100 without manipulation; hence from the standpoint of overstocking a field the management plan is 3000 pounds ahead of the plan of keeping an extra number of colonies. At the present low prices of honey, this, at 10 cents per pound, would amount to $300 as the price of the extra manipulation, should it be proven that such was required, besides the saving of the capital, and interest on the same, which would be invested in the extra hives. I am firm in the opinion that there are many men in this country who do not receive a greater amount than that for a whole year's manipulation (work) in the coal mines and other places. And this same thing holds good, be the number of colonies kept great or small. A man can care for half the number of colonies on the management plan as easily as he can for double the number as proposed by my correspondent, and suggested by the adviser of the questioner, and this half will give the apiarist as good results in dollars and cents as will the whole when cared for in a slipshod way, and save the extra honey consumed by the extra half of the number of bees, as clear

Digitized by Google

gain to the bee-keeper. Thirty years of bee-keeping life tells me that this is not mere fancy, but facts which the success of the two plans proves, as will also be obvious to all who have closely watched the reports in our various bee-papers during the past. If any reader, or the questioner, has any doubts along this line let him try the two plans side by side till he is convinced. With the low prices of honey seems to have come the idea of going back to the old idea that "bees work for nothing and board themselves," and so many bee-keepers seem to think that all that should be required of them may be summed up in the old saying of "hold the dish to catch the porridge." To the truly enthusiastic bee-keeper there is no fun in such a plan as this. Pleasure comes only through a love of our pursuit; and if we love it we are always interested enough to make the labor *fun* while we are doing it. Did any one ever have any fun going fishing and get it by swinging in a hammock in the shade? Did any one ever enjoy himself in the fox-chase while sitting beside the sitting-room fire? The love of fishing and of the fox-chase is greater than that for hammock and fire, and so the love for *work with the bees* must be greater than the love for ease if we would succeed in our pursuit.

MOTH-WORMS IN FENCE HONEY; A POSSIBLE OBJECTION.

Mr. E. R. Root:—I have watched the discussion of the fence question with keen interest, and I am thinking of making a trial of it. Nearly all my honey in the past has been raised without separators of any kind.

Will you please give me your opinion of the following? Will there not be great danger of the tiny wax-moth working on the cappings of fenced honey when it is crated up for shipment? The combs coming as they do so near together are, in my opinion, much more liable to this damage, for I have noticed in crating no-separator honey that, where two combs would touch, or nearly so, that would be exactly where these little moths, too small to be seen by the naked eye, would do their worst work. Have not other California apiarists brought up this question with you before?

I have much wished that I could try the fences in connection with ordinary 7-to-foot bee-entrance sections. Is this wholly out of the question? I do not like the idea of having a crate of honey, when opened, showing nothing but the wood parts of the sections. I like to have the honey smiling up from between the sections as it shows in the ordinary open-top section. Don't you?

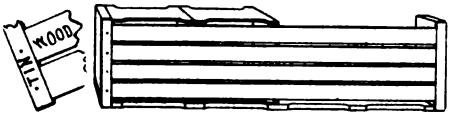
Will you kindly send me a quarter of one of your fences? I wish only the end posts and the posts next to it, with the slats. This will give me the measurements and the idea of it, to see how I can work them into my supers. Also please send me a quarter of a no-beeway section. These will be easily mailed, and will do me as well as a whole section and fence.

I will give you an inflexible rule to help you out in deciding what length the articles should be in GLEANINGS. When you have a very long article on an interesting subject, right to the point, put it in; when you have a real short one that is just as good, put that in; and when you have a medium-length article that is just as readable, give that the same chance you did the others. G. K. HUBBARD.

Riverside, Cal., Jan. 24.

[There may be something in the fact of having two adjoining faces of honey so much less than a bee-space apart; but after all, we hear but little about moth-worms nowadays since the advent of Italian bees and their crosses. I should, therefore, anticipate but very little trouble from that source. So far fence honey has been gobbled up too soon in many markets to be damaged much by moth-worms.

It is entirely feasible to use a slat separator with the old-style beeway section. Indeed, we list in our catalog this year that sort of separator. The accompanying illustration shows how it may be used. It is constructed the same as any fence, with the exception that there are no cleats or projections on the bars; and the ends are bound together with a strip of folded tin. These slat separators, as we shall call them, may be used in any super using old-style separators and beeway sections.



Mr. J. E Crane used a good many such separators last season, and is of the opinion that the freer communication made better-filled boxes; but at the same time he prefers the plain sections and fence.

As to the length of communications, and which ones shall find a place, this is often a hard matter to decide. What may be interesting to the editor may not be so to the reader. After all, it is the readers' preferences that we have in mind. I desire, therefore, as far as possible, to keep in touch with our readers and hope they will be free to criticise the contents of GLEANINGS, as by that means I can make a more interesting and readable journal.—ED.]

HOW TO SECURE THE GREATEST INCREASE FROM A SINGLE COLONY.

On page 164, April, 1881, of GLEANINGS, is this statement: "A friend in Michigan, with hives and empty combs, once built a single colony up so as to make 30 of it in a single season."

Will you kindly tell us how to proceed to accomplish such results, or even half so many? What would be the relative value of old combs and full frames of wired foundation in build-

Digitized by Google

ing up nuclei? Would not feeding be necessary from start to finish? B. F. JONES.
Idaho Falls, Ida., Jan. 24.

[Given a good strong colony, a supply of ten or twenty hives complete, nailed up and painted, each hive filled with frames of foundation, full sheets (not half sheets), one can, with care and a knowledge of the business, secure a large increase in a single season—possibly thirty from one. If I could have frames filled with empty combs, or combs with a little honey in, I should prefer them to mere sheets of foundation. My method of procedure to get the largest increase would be this:

As soon as there comes settled warm weather I would divide my colony up into four two-frame nuclei. To each I would introduce an untested Italian queen at the time of making the division; contract the entrances down to each hive, so that one or two bees could pass at a time. I would then feed a little every day. If I could just as well I would use cushions on top of the frames, and on each side, putting the nucleus in the center of the hive, as it is very important to keep the little cluster of bees warm.

When the queen fills the frame or frames with eggs, and there are bees enough to cover, I would put in another frame on the *outside*. As the weather warms up it might be advisable to put in still another frame, putting this one in the *center* of the cluster, in the mean time keeping up gentle feeding daily. A very good feeder for this purpose is the Boardman. This can be slipped into the entrance, and by screwing the can tightly or loosely into the cap the flow of feed can be regulated for the daily needs.

I would make the syrup by mixing together sugar and water in equal proportions by measure. Stir thoroughly, and then pour into feeder-cans.

As soon as the nuclei have two or three frames of sealed brood, larvæ, and eggs, take out one or more frames from each, and form another. This plan can be continued till one has 15 and possibly 20 little colonies; and if one has experience he *might* continue the division till he has 25 or 30; but he should stop dividing within at least 60 days before the setting-in of cold frosty nights.

If one can not afford to buy queens he will have to raise them and then the increase will be cut down more than a half, probably.

While an expert may possibly in one season be able to produce 30 colonies from one, the average beginner, probably, would not be able to produce more than 8 or 10. In 1892 I myself, without any special effort, reared all the queens, and increased an apiary from 10 colonies, some of which were almost nuclei, to some 85 good colonies that went into winter quarters. They had no empty combs, but they were given full sheets of foundation. They were not fed, but were made to depend entirely on natural sources for their supply. Had I fed after the honey season, and given empty combs, I might have made double the increase. But let me tell you, it is one thing to get an increase of 30 from one colony, and it is another thing to get a proportionate increase from 10 colonies. To get so large an increas as 30 from one stock, one must have a long season, supply laying queens as fast as needed. feed a little every day, allow no robbing to get started, and, above all, queens must be good. It may be there is a bee-keeper living that is smart enough to make an increase of 30 colonies from one in one season by raising his own queens. If there is one who has accomplished the feat, let him hold up his hand and tell how he did.

There is much being said about expansion nowadays; perhaps it might be well to devote a little space to the subject of expansion of one colony.—ED.]

THE PETTIT IDEA; IMPORTANCE OF A BEE-SPACE OUTSIDE OF THE OUTSIDE ROW OF SECTIONS.

I had intended to write you for GLEANINGS in regard to sections and prices, but the ground has already been covered. I will merely say that my experience in securing 2000 lbs. of comb honey from 30 colonies this season convinces me that I want a bee-space on the outside of the outside row of sections, with passages through the separator.

O. E. NICHOLS.
Cincinnatus, N. Y., Jan. 30.

A CORRECTION; MOUNTAIN GROUSE.

I am reported as having an apiary in the Yellowstone Valley, near Billings, and that I had taken 200 lbs. of honey from one hive. The truth is, I have never handled bees; but I shall be a bee-keeper some day. I think the Yellowstone Valley a good place for an apiary. I am glad you enjoyed your trip through the park, and hope you will come again. Those "pretty chickens" you ran across on your trip were mountain grouse—too bad you did not have a gun. CARL VOLLMER.
Effingham, Ill., Jan. 1.

[Thank you, friend V., for setting me right. My informant said he felt pretty sure you were the man. Since we are mistaken, can't some other Montana bee-keeper tell us who it was, or give us a report from the Montana alfalfa regions?—A. I. R.]

THE DARKY BOY IN THE APIARY.

Say, Ernest, my eleven-year-old girl is interested in the discussion of white or black clothing angering bees, and wants to know how the darky boy would figure in the apiary.
Alsea, Oregon, Dec. 30. F. A. BATES.

[That's a question I can't answer; but the average colored boy will hold his own in any apiary.—ED.]

SWEET CLOVER FOR ALKALI SOILS.

We have nothing so valuable here as sweet clover to enrich alkali lands. Wherever it has grown for two or more years it has left a rich spot. I will sow it on all my alkali land this spring that I can get water on, as it needs irrigation here the same as alfalfa.
Gazelle, Cal., Jan. 30. A. A. BROWN.

Digitized by Google

THE HONEY-LEAFLET A SUCCESS IN SELLING HONEY.

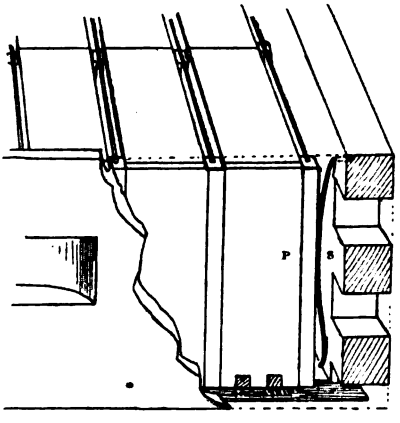
We note that you want to hear from others in regard to the success of the honey-leaflet. So far as we can judge we believe it has helped the local sale of honey on the western slope. We have only a few left out of 5000, and several merchants have asked for more to distribute to their trade since first having them. We have had many farmers and beemen speak well of the leaflet, and say it was a good thing. THE ABBEY HARDY CO.

Grand Junction, Colo., Jan. 9.

TRADE NOTES
BY E. R. ROOT.

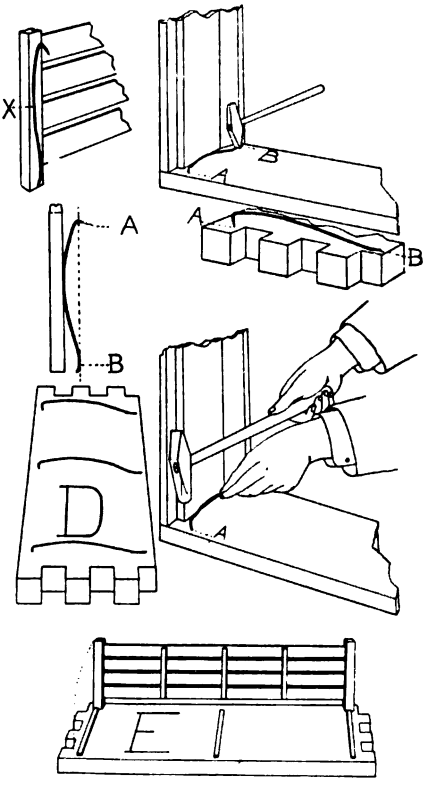
OUR 1899 SUPERS; SPRINGS VS. THUMBSCREWS AND WEDGES.

It seems to be generally admitted that a means for producing compression on sections when in the super is desirable, and some go so far as to say it is a necessity. If sections and separators are placed in supers loosely, it leaves little interstices or spaces that the bees fill up with propolis. Various devices have been used to bring about the desired pressure. Some prefer and use thumbscrews; others, wedges; and still others, tightening-strips. Thumbscrews stick out in the way, and sometimes in damp weather become stuck fast in the holes. Wedges are very often propolized fast, making it difficult to remove them. The same objection applies to tightening strips, although to a less extent. We now use two or three springs in our 1899 supers, one at each end, and bearing against the fences, and one in the center. See S in the cut below.



These springs produce a gentle even pressure against the contents of the super; and, no matter how much the weather changes, causing the stuff to shrink or swell, those springs will adapt themselves to the condition, producing always a gentle yet firm pressure. After the sections are filled they can be easily taken out, owing to the fact that there is a *yielding* pressure; and propolis—well, it has no show.

The manner of applying the spring compression to the supers is shown in the accompanying illustrations. X is a curved piece of steel wire, one end of which is bent at a right angle, and sharpened. This is driven into the wood at a point that will come opposite the end cleat of the fence when in the super. After this is driven in, the other end is pounded down into the wood, making a sort of groove for the end B to slide in. Three such springs are used in our regular super—two to come directly opposite the end-cleats of the fence, and one opposite the center cleat as at D, showing super side detached. On the opposite super side, and spaced in the same manner, are nailed three thin cleats, supplied with each package. These are to keep the outside fence a bee-space from the super side, about the same distance away as the springs



do on the opposite side. We put in enough fences so that we have a fence between each outside row and super side. It costs a little more, it is true; but it carries out in effect the Pettit idea, or what he calls his divider—a method by which it is said the outside faces of the outside rows of sections are as well filled out as the faces in the center rows. Reports from bee-keepers last season go to show there is a good deal in this little scheme, and if so it may be worth dollars.

Digitized by Google

THE boss printer says we have enough matter, editorial and otherwise, to fill another complete journal, notwithstanding this number is eight pages larger than our regular issue. This will explain why some communications sent some little time ago have not yet appeared.

WE have been having some cold snaps in Northern Ohio. The mercury has ranged all the way from 15 to 20 below zero, and some reported that it went even below 20. While it perhaps may have been as cold as this before we never knew it to keep there so long. I just received a letter from Dr. Miller, stating that he was in the house with his coat off, notwithstanding it was 24 below zero outside. But he dryly adds, "We have a fire in the house."

FRED S. THORINGTON.

WE have just learned through R. B. Leahy, of the Leahy Mfg. Co., of the death of Fred S. Thorington, of Chillicothe, Mo. Mr. Thorington has been quite a prominent writer, particularly for the *Progressive Bee-keeper*. Mr. Leahy writes:

He had been an invalid for more than 20 years, and with a wheel chair he wheeled himself through his apiary of 40 colonies (sometimes) of bees, and cared for them. His neighbors say for him that in all these days of pain and inconvenience he always remained cheerful, and was a lover of flowers, birds, and bees.

Most of us, under such circumstances, would hardly have thought we could keep bees, to say nothing about taking care of them. And this reminds me of the case of Mrs. L. C. Axtell, one who has been an invalid all her life, and yet one who has done a large part of the work in managing one or more large apiaries. Some of the time she has been obliged to lie on her back while doing her work. Such people have real pluck and heroism.

APIS DORSATA FOR THE UNITED STATES.

AN American soldier now in the Philippines at Manila has kindly volunteered to secure *Apis dorsata*, of which he says there are a great many in and about Manila, and further that the natives have offered to furnish him the bees. He has asked for instructions how to ship, etc. We have given him the necessary information, and have offered to pay him $25.00 for one queen, $35.00 for two, and so on. We will publish his interesting letter in our next issue.

I for one feel sanguine that we shall be able to obtain the big bees, because Mr. Uglow says Manila is only 20 days from San Francisco. Of course, he will have to arrange to get direct steamer connection so the bees will not be caged any longer than is absolutely necessary. If any of our subscribers desire to communicate with Mr. Uglow, his address is, John C. Uglow, Co. M, 2d Reg. Ore. Vol.

THE VALUE OF THE BICYCLE FOR OUT-APIARY WORK.

IN the *American Bee-keeper* for February there is a very interesting and valuable article from one of "Coggshall's lightning operators," Mr. Harry S. Howe, to whom I have before referred. His experience in regard to the value of the wheel for all kinds of out-apiary work is very nearly my own. In fact, I am almost inclined to put all he says in italics.

The average bee-keeper under 45 who is used to handling horses, and says he must have them anyhow, and therefore thinks he would have no use for a bicycle, is making a big mistake. Let him keep his horses if he wishes; but he will find that the bicycle will be used much even then.

As our readers know, every summer I manage one out-apiary myself, and do nearly all the going and coming on a bicycle, even to carrying foundation, supers, and what not. There are lots of things a fellow can do *if he only thinks so;* and I have no doubt that Harry could even carry bread and milk if he wanted to.

As I have often said, one can hire a team for one out-apiary or two, and possibly three or four. All hive stuff should be delivered early in the season, and then during the greater part of the rest of the year one can come and go on his bicycle, even carrying some material when occasion may require. After the crop is secured, then of course he will be obliged to hire a team or teams to carry it to town. As a general thing a farmer will do the work for a little honey.

Keeping a horse is expensive business, as I know from sad experience; and then a horse around bees—well, nature never designed that they should be together in company. I had one valuable animal killed, as some of our readers know, at one of our out-yards. I have had runaways in going to yards; broken thills; broken buggies; broken harness. I have been through the experience of having a horse have the mud fever; I have been kicked almost into insensibility. Oh, dear! it would have been money in my pocket if I had never invested in horse flesh.

The horseless carriage will soon be here, and then we can bid good-by to the horse so far as the bee-business is concerned.

There, now, I did not intend to write all this prelude to Harry's excellent article. Here it is—or, rather, an extract from it:

By using a wheel a man can do much more work in the out-apiaries than with a team.

Mr. Coggshall's yards average nearly 10 miles from home, and my lot average 14, which gives lots of chance to save time on the road. With a wheel a man can start as soon as he is ready. When he gets to the bees he can go right to work. The time saved on the road and in getting started comes just when it is worth the most.

My regular riding gait is 12 miles per hour, or twice as fast as a good team can go over the same roads. Of course, once in a while a wheel will get stuck in the mud, but not often. It did not happen to me once last year, and only twice this season, and one of those times I should have gotten home if I had been alone.

There is a great difference in wheels in that respect. When I built my present wheel I had that point in mind; and by using small tires, with plenty of room between the tires and the frame, I can go right along unless the mud is very deep. The time saved by the

Digitized by Google

use of a wheel, where one rides as much as I do, would pay for one in a single season.

One of the worst drawbacks to the use of the wheel is the impossibility of carrying bread and milk for dinner. In the case of several of the yards there is no place to get a meal, so we have to carry what we have. At some of them we have a regular boarding-place, where we can get a dinner or stay over night.

Even on the farm the wheel comes in handy. One day recently, one of the horses was suddenly taken sick. Brown got on his wheel and hustled for a veterinarian. When the doctor got there he said he was only just in time to save the horse's life. If we had taken the time to hitch up another horse, that, together with the time Brown made by "scorching," would have made it too late.

Sometimes people ask me how I manage to run my out apiaries without a horse, but it is easy. My teaming costs me about the same as my bicycle-tires, and can be paid for in honey at that.

Speaking about bicycles, my advice is to get a good one. Do not pay much less than $40.00—better pay $50.00. There are some good wheels at $35.00; but before you purchase one, let me know the name, for perhaps I can tell you whether it is a good one or not.

Now, perhaps you would like to know what wheel I would recommend. Nearly all* the Rootville folks and many of our employees are riding Clevelands. We have found them to be so immeasurably superior to the common run of bicycles that we would hardly take any other as a gift. They run smoothly and easily, and do not require repairs.

This is not a "paid puff," for I am only telling you what is my actual experience and sincere belief in regard to bicycles. There are others, probably, just as good; but I *know* these are excellent. If you want a Cleveland, just write to the H. A. Lozier Co., Cleveland, O.

I omitted to state that the Cleveland bicycles have gear-cases. I would no more think of riding a bicycle in the future, without having the chain covered, than I would think of going without a hat. My Cleveland, with its gear-case, has not had a cent's worth of repairs, and the chain has not even been touched in over a year's riding. It runs so still that one would hardly suspect there is a chain inside of the case. I have run that wheel through mud and water, dust and sand, over snow and ice, I was going to say, nearly every day in the year; and, with the exception of the tires, it is practically as good as when it came out of the shop.

THE PURE-FOOD CONGRESS.

On page 269, April 1, 1898, I spoke of the last meeting of the Pure-food Congress that assembled in Washington on March 2d; and I further referred to the fact that our representatives E. T. Abbott and Manager Secor, sent by the U. S. B. K. U., had received prominent recognition on the floor; that one of the members was made chairman of the Committee on Organization, and another, vice-president for Iowa. Another meeting of the same organization has been held, also in Washington, on the 19th and 20th of January. I take pleasure in copying from Mr. Abbott's paper, *The Modern Farmer and Busy Bee*, the following paragraph:

President Blackburn showed himself to be an excellent presiding officer, and, owing to his promptness and decision, a great deal of routine business was transacted, notwithstanding there were a great many addresses on the program. It was voted to make the organization permanent; a constitution and by-laws were adopted, and officers elected, to serve until their successors are chosen. The old officers were all re-elected, it being the opinion of the committee on organization, of which the writer was chairman, that those who had begun the good work would better be left in full charge for the present.

It will no doubt be of special interest to the bee-keeping friends to know that our industry received its full recognition on the floor of the congress the same as last year. The editor of *The Modern Farmer and Busy Bee*, who went as a representative of the United States Bee-keepers' Association, and the Missouri State Board of Agriculture, was made chairman of two important committees, and was again named as vice-president for the State of Missouri. Mr. Secor was continued vice-president for the State of Iowa; E. S. Lovesy, for Utah; and, at the suggestion of the writer, Thomas G. Newman was named for vice-president for California. It will be seen from this that the bee-keepers will have themselves to blame if they do not have a hand in this important legislation. I desire to say in this connection that the bee-keepers of the United States are under special obligations to the Burlington, Big Four, and the Chesapeake & Ohio Railways, for it was through the courtesy of these roads that the delegate of the United States Bee-keepers' Association was able to attend the Congress, there being only the small appropriation of $15.00 set apart for this purpose by the directors of the Association, and this amount would not pay hotel bills and sleeping-car fare, to say nothing about the other necessary incidental expenses.

Mr. Abbott says the attendance was good, and the delegates in general believed that the pure-food bill, as revised by Congress last year, should be urged without any material changes. Some favored the changing of the wording in a few minor respects, while some delegates tried to so amend it as to kill it, but the latter were promptly "sat down on." The proposed law does not favor classes. It simply aims to make producers sell all articles of food for *just what they are*, but does not propose to prohibit entirely any of them, but to let each stand on its own merits; but those merits must be plainly set forth on all objects offered for sale. Mark Twain says he found this state of things prevailing in Paris, and he says it seemed strange to him to see such a "superfluity of honesty" as was displayed in that city on all the jewelry offered for sale. No one could get cheated.

The following is an abstract of the address of President Blackburn:

The question of what we shall eat has been a neglected subject ever since Eve ate the apple in the Garden of Eden. What a myriad of evils would have been avoided had not the first of all pure-food laws been violated!

The measure we are here to consider is not offered as a cure-all in any sense. No one, not even its most ardent friends, considers it a panacea for all the ills that afflict our food supply. Neither do we think that the twin sister of fraud—the harlot adulteration—will be an impossible creature when this bill becomes a law. Since the great lawgiver of Mount Sinai issued that immortal edict, "Thou shalt not steal," men have stolen, and will steal, until the end of time.

While this bill does not do all we could wish, does not meet all the objections that have been or will be raised against it, it will and does do much that needs to be done, and will be certain to render adulteration hazardous, less profitable, and exposure quick and certain. I think the least observing and the most skeptical will agree that it is high time that the many State measures to protect the public health and secure purity in our food should have their principal features crystallized into a national statute, that all States may engraft their legislative twigs on the national vine, and thus develop the fruits of legislation on harmonious, progressive, and uniform lines.

---

* A. I. R. at present is riding a chainless Columbia, also a good wheel.

Digitized by Google

No national law on this subject will ever fully meet the views or satisfy the desires of all the many States and Territories of this great country.

I do not believe it possible that such law can do so. The critics will say the law is imperfect and we answer: "We are aware of that." They tell us the law has its defects, and we reply: "Show us a law that has not"

The measure as it stands now is a long, sturdy step in the right direction; a strong prop upon which to hang our hopes; a substantial foundation upon which to erect a magnificent structure. It will effectually stop many evils with which we contend; right many wrongs, thus bringing justice where justice is a stranger, and protecting those needing protection yet utterly unable to protect themselves. It will render adulteration difficult, detection sure—a more effective remedy than any which has been proposed, considered, or enacted.

It represents the concrete experience of many years, and the best thoughts of studious minds.

It embodies the compromise views of those who have long considered the important and far reaching questions with which it deals. I do not hesitate to say it is a compromise measure; all such laws are, and always must be compromises. It must be expanded and contracted to meet the composite mental structure which gives it being and stands sponsor for its necessity.

It is important that it should be made a law during the present Congress. I therefore urge you to be on your guard against proposed amendments. Scan well their origin, and consider long their purport. Be not moved by shallow sentiment, nor turned by loose light logic. I adjure you, my friends, to stand as one man for the main features of this measure.

There is good reason for the adoption of this measure. No city or hamlet is free from adulteration, and one of the peculiarities of the business is that, the further away from home an adulteration gets, the more respectable it appears. There is need for this bill from one end of the country to the other.

PROSPECTS GLOOMY; DRY WINDS IN CALIFORNIA, AND NO RAIN; AN UNPRECEDENTEDLY LOW TEMPERATURE OVER THE CENTRAL AND EASTERN STATES; FEARFUL WINTER LOSSES EXPECTED.

I HAVE just received word from J. H. Martin (Rambler), stating that the Californians are getting to be anxious again for rain, as it is nearly a month since their last downpour, and the time is getting short for rain to do them any good for the coming year. I have written to Mr. Martin to let us know by wire in case the long-expected rain does come. You may wonder why I am so anxious to get that information. For the reason that it will make a great difference with buyers in the East and with those on the Pacific coast whether the honey crop in California is assured or not; and the sooner we can get the information the better.

Since writing the foregoing we have heard from Mr. M. H. Mendleson, one of the big bee-kings of California, who writes under date of Feb. 6:

We are now having a fearful drying wind, and it has been blowing very badly for the past week or ten days, making the present prospects poor again for another year. The surface of the soil is getting dry and hard. I give up the season, although late rains *may* save us.

He further adds that some of the prominent bee-keepers are preparing trips northward to look for locations where their bees can fill up for another winter.

This is a gloomy outlook indeed for California—a failure of honey last year, and a probable one this year. But while they on the western slope are drying up, we of the central and eastern portion of the country are freezing up (i. e., our bees). There has been an unprecedentedly low temperature of a large portion of our country. Even in that mild and balmy State of Oregon a subscriber, on Feb. 7th, writes that it has been 18 to 24 below zero. In Northern Michigan it has been 50 below, and in States where it rarely has been below 20 above it has been down to zero, and staying there.

All this means fearful losses in bees if there is not a change soon for the better. Early in the year prospects (by the way the orders were rolling in) seemed to indicate that this season would be as heavy as last in spite of last year's general failure of honey. But if half the bees die off there will be a lot of discouraged bee-keepers and supply dealers. No one can determine just yet what the outcome will be.

But it's an ill wind that blows no one any good. The heavy winter losses, if they do occur, will not be with the provident and bee-journal readers. They will winter their bees and they will get the crop this summer if there is any honey, and they will have all the markets to themselves. It is the careless and go-it-as-easy-as-you-can bee-keepers that will have a tale of woe to tell. It is they who will get no honey, even if there is a good season.

Later:—After the foregoing was in type the following came to hand:

I report at this date over half of my bees dead. The hives are full of honey. The inside is daubed up badly, and full of frost. It looks as if there would be a shortage of bees next spring. W. D. SOPER.
Jackson, Mich., Feb. 11.

When a man like W. D. Soper has lost half his bees, then the case is much worse than I thought it would be; for if the up-to-date bee-keeper is going to lose so heavily, how many bees will the go-as you-please take-it easy bee-man have next spring? If they do not have an almost total loss they will have hardly any thing but nuclei. It begins to look now as if there would be a great demand for bees by the pound and nuclei next spring. Here is a chance for somebody to make some money.

Still later:—To-day, Feb. 15, it is warming up, the mercury standing at the freezing-point (32). This will, perhaps, give the bees an opportunity to change their clustering-nest; and if it does it will save possibly thousands of colonies.

DELIVERING HONEY TO MARKET ON A BICYCLE.

AFTER my editorial on the subject of wheels for out-apiaries had gone to press I received the following from a bee-keeper who not only uses his bicycle for apiary work, but actually carried over 3000 lbs. of honey to market on it. Here is what he says:

You speak of the wheel as being very useful in the apiary. This is my second season in the bee business, and I have delivered 3200 lbs. of honey on my wheel I take as much as 40 pounds at a time in 5 and 10 pound pails, as I retail it all. I am very much in love with GLEANINGS, and always await its coming.
St. Thomas, Ont. W. J. ROBB.

WE are just making preparations to put in a 350-horse-power boiler. Our present boilers are inadequate for the work we have to do.

Digitized by Google

Whatsoever ye shall ask the Father in my name, he will give it you.—JOHN 16:23.

For some time back, dear friends, I have had a good deal to say in regard to the matter of answers to prayer. Several times I have thought that perhaps I was holding on too long to this subject; and yet in my desire to benefit mankind, and to help those who are in trouble, I have been again and again almost impelled to tell you how I had been helped and guided, and lifted through my troubles and discouragements. God forbid that I should at any time or under any circumstances convey the idea to any one that God was more willing to hear and answer *my* prayers than those of the rest of humanity.

A good many times I have worked long and anxiously to accomplish a certain thing, and have failed. Then I hear or read of somebody who has succeeded with the same thing, and I am filled with a great desire to see the man, and to see his garden or farm, with a feeling that, if I knew just *how* he did it, I could do the same thing, or something nearly the same; and I have traveled many miles, as you know, to meet these successful people and to learn their ways; and I have tried through this journal to explain to you how it is they *have* succeeded when so many of us have failed. A good many times it is a simple matter when you come to see the actual thing with your own eyes. When I was full of enthusiasm over the Grand Rapids lettuce I succeeded in getting a glimpse of a greenhouse containing a full crop. This glimpse was only by the light of a lantern, and I was in the greenhouse only a few minutes; but that one glimpse was worth to me many dollars. I really felt glad when he agreed to let me have half a pound of the seed for $50, because I knew then I could grow such lettuce, or felt very sure I could, with the seed and the glimpse he had given me. Others succeeded in like manner, and now growing this lettuce is a great industry, and it is cataloged by almost every seedsman in the world. It comes somewhat natural for me to describe how things are done, in a way that will make others understand it so they can duplicate my success.

Now, in this matter of answers to prayer I have felt sure that thousands of people might triumph over their difficulties if I could make it plain to them how God answers prayer, and not only go through life rejoicing, but, more than that, go through *death* (with its pain and suffering), rejoicing in the hope of a risen Savior and Redeemer.

While these thoughts were in mind it was my privilege yesterday to listen to a sermon by Rev. S. D. Gordon, of the Cleveland Y. M. C. A. His subject was, "Hindrances to answers to prayer." You may be sure I was attention all at once. He first read promises from the Bible — a great number of them — including one similar to the one I have chosen for my text above. How should it come that with these great, precious, and wonderful promises, repeated again and *again*, so few professing Christians and church-members should avail themselves of that wonderful privilege of going straight to the Creator of all things with their troubles and perplexities?

Mr. Gordon said he would consider four reasons why our prayers are not answered. The first and most important hindrance is *sin*. This is a very little word, and many times people think it is a little matter — *little* sins. He said we were having a good deal to do just now with electricity. One who is in touch with the great Father above is like the man who goes to the switch-board. He moves a little key only a few inches, and perhaps a whole quarter of a city is all at once flooded with light as a consequence. He turns another switch, and lights another quarter, and so on. By means of this switch-board he moves a single lever, and electric cars are sent miles here and there; or a great factory is started running with all its wheels and powerful machinery. Now, these things are possible while the connections are perfect. If a wire gets down, the current is "grounded," and nothing can be done until this broken circuit is repaired. People talk about *little* sins. Suppose a man were working a telegraph instrument, and there is a break in the wire. The ends are separated, say, half an inch. Suppose he should express astonishment that so little a break as half an inch should prevent his sending a message. Dear friends, just one little sin entirely spoils the connection, and our prayers never reach the throne of grace. One might pray till doomsday, just as the telegraph operator might keep drumming on his key till doomsday. There can be no message or response until the mischief is repaired. Is not that Bible? David says, "If I regard iniquity in my heart, the Lord will not hear me." Once more I am sure you are all familiar with the passage where the Savior says, "If thou bring thy gift to the altar, and there rememberest that thy brother hath aught against thee, leave there thy gift before the altar, and go thy way. First be reconciled to thy brother, and then come and offer thy gift." One can not expect God to hear and answer his prayers while any little thing remains unadjusted. I once had an actual experience right along in this very line. I went to prayer-meeting and sat down; but I could not keep my mind on the subject of the meeting because I was thinking of a difficulty the foreman in our lumberyard had had with a man about some basswood lumber. I arose at once and left the meeting, planning to go in search of my irate brother. I met him very unexpectedly within a few rods of the church. I put out my hand to him smilingly, but he was not going to take it. He had just been consulting a lawyer. I told him we two would consult the same lawyer, and I would abide by his own lawyer's decision. I still think the lawyer was a little biased in giving his opinion; but I paid the difference, and got back to prayer-meeting before it was out.

Digitized by Google

Jesus has much to say about *forgiveness*. Suppose we call this the second obstacle. He not only says, "Love ye your enemies, and do good to them that hate you," but he bids us over and over to forgive as we hope to be forgiven. He tells us we must forgive and *forget* if we expect to be forgiven. That wonderful passage in the Lord's prayer ought to be sufficient; but for fear it may not be, the Savior seems to have expressed that same thought over and over again. A great many times we must suffer loss in this world. In the effort to lift humanity above human weakness, his admonition sometimes seems to be almost extravagant. For instance, he says, "*Blessed* are ye when men shall persecute you and revile you, and say all manner of evil against you falsely for my sake."

In this day of temperance crusades against the saloon-keepers, many ministers of the gospel have been severely persecuted and misrepresented, and falsely accused. I wonder if they all remember the wonderful promises to those who have been thus wronged. In the sixth chapter of Luke we are bidden to *rejoice* and *leap* for joy when we are persecuted just because we are taking a bold and decided stand against sin.

The question may come up right here, "Mr. Root, do you mean to claim that God hears *your* prayers because your life is free from sin?" Those who know me best are aware that my life is not free from sin or sinful thoughts; but I hope it is free from deliberate, willful sin. My heart is selfish, and the selfishness sticks out and hurts people, and does harm, I fear, wherever I go; and I am so selfish I am afraid I do not see it or notice it till somebody calls my attention to it. Mrs. Root may say, "Dear husband, you walked through the house with your rubbers on, and probably just after you had been in the muddy greenhouse; and there are your foot-tracks across my clean kitchen floor, just after it had been so nicely scrubbed." Then she takes the mop and pail, and cleans up the footprints, when I am sure she is *already* tired and weary. Perhaps I was in quite a hurry, and forgot to remove my rubbers, and I commence what is intended for an apology: "I did not mean to make any trouble, but I was in a brown study about something more important than muddy (or clean) floors."

There, do you see any selfishness sticking out when I try to tell the story? and is not selfishness *sin?* Most surely it was a sinful act of mine to be so much taken up with my own affairs that I forgot the dear wife, and did not think a word about her anxiety to have her home neat, healthy, and tidy-looking. Giving way to this kind of selfishness may ruin the happiness of some fellow-being, or result in loss of life. And I am just now reminded that Bro. Gordon said the third hindrance to answers to prayer is selfishness. Oh, dear me! When I come to think how many of my prayers have been selfish ones I am literally astonished and *amazed* to think that God could constantly hear and answer a single one. It is true, I had *some* good and generous thoughts in mind when I prayed over my troubles. When we got into that difficulty with the electrical machinery, I had in mind setting many needy people at work; and when I prayed to be delivered from the pain of toothache and earache, I asked for a kind of deliverance that I could consistently recommend and teach to all mankind; and I hope that through all my toil and all my prayers I have been keeping constantly in mind my *neighbors*, community in general, and all who read these Home Papers.

Many wives and husbands pray for unconverted companions. The Christian mother prays for her husband, perhaps day after day, and may be year after year. Why does she wish *her* husband more than other men to become a Christian? Naturally, because he *is* her husband, and it is right and proper that she should long for his conversion. If she wants him converted because it would be nice to have him go to church and sit by her side, because it would be nice to introduce him to her Christian friends, have him ask a blessing at the table, and all these things, her prayer may be a very selfish one after all; and if while she prays she indulges in various human weaknesses, and lets him see that she is petulant, ill-tempered, and the like, it is certainly not strange as the years pass that her prayer is not answered.

And just here, dear friends, is the great thought of this talk of mine to-day. I am anxious that each and all who come to me will have faith in my words, and may lead lives of prayer, because a life of prayer means and includes so much. All sorts of plans and devices have been invented to make people honest. The beauty of truth, unselfishness, etc., has been talked about and written about. Young people have been told, oh how many times! that honesty is the best policy, and yet they are not honest. We, each and all, have *agreed* that honesty is best; but we are not honest. We assent, but we do not act. We take the best side of the bargain. May be we do not all the time, but every little while that demon of Self gets in, and we take the better side, and let some patient, good-natured poorer brother in this world's goods take what is left. Education does not help the matter. Belonging to the church helps it some, but I have sometimes thought not *very* much. But how is it about beginning a *life* of prayer? Was anybody ever so stupid as to think that he could humbug God when he goes off by himself and kneels in his closet? Why, the veriest idiot that was ever born would not be so silly as to take words on his lips when none but his Maker could hear, that were *not* honest and true. The man who prays — that is, he who has felt the need of God — and goes into his closet alone to pray, is honest then if he ever is in his life; and if he expects God to hear and answer a great part of his daily supplications it will be because he has made those words in the 139th Psalm, 23d and 24th verses, his own: "Search me, O God, and know my heart; try me, and know my thoughts, and see if there be any wicked way in me, and lead me in the way everlasting."

A life of constant and honest prayer will

Digitized by Google

not make us all at once unselfish, I am aware; but if we commence correcting and straightening up every little transaction as we look back over it, and see that it is not exactly fair, we shall soon get to living an honest life, and God rewards *all* such efforts. Suppose, dear friends, you are anxious about some young man — may be your own boy. He is away from home, and exposed to temptation. Wicked people are planning for his downfall, no doubt. Suppose you should find out that *he* is commencing a life of prayer — that he is working hard to establish a perfect, unbroken connection with the dear Savior. Suppose you learn that he is in constant communication with the great God above; that he has access to a "switch-board" connected with a direct line to the throne of God, and that he can at any minute telegraph the little prayer, "Lord, help!" and that he has learned to know and believe that help comes instantly — help sufficient so that he may withstand all the fiery darts of the evil one. How much would it be worth to know, dear parent, that your boy had established such a close relation with his Maker—a relation that is to go with him through life? Now, please remember I do not mean to tell you such a person will be lifted out of all troubles. The wise teacher does not do the work for the pupil. When I was quite a child we had a schoolmaster who always did the "sums" for the boys when they brought up the slate and pencil and said they could not get the answer. This master could cipher very fast, and many of the boys looked on with bright eyes while he made nice figures and did the work in good style. But a new teacher came. There was considerable grumbling among the boys because he did not do the work for them. I heard of it, and thought I would not go to the master. I was away ahead of the class with my Ray's Arithmetic, Part 3; but after working two days on an example I told the teacher I did not believe it was profitable for me to waste more time on it. I shall always remember how he spoke. "My young friend, I could work that out for you very quickly, and in one sense save your time and mine; but I think you can do it all right yourself if I simply ask you a few questions." He asked me just *one* question, and that one question revealed to me the fact that I had been stupidly away off the track, and I assured him that I should like to go to work and do it myself without any further help. He kept his eye on me, and when I had my answer all straight and clean in less than five minutes a sort of telegraphic communication passed between us just by our eyes, and he and I were warm friends ever afterward. His plan of teaching was more by quiet questioning than by doing any work at all himself. God, in his loving kindness, answers our prayers in much the same way.

Now, the dear brother who gave us that talk about hindrances to answers to prayer somewhat surprised and startled me in considering that fourth and last hindrance. He said something like this: "Dear people, I do not understand it, I confess; but I believe it is nevertheless true that Satan himself is permitted—at least to a certain extent—to hinder and delay answers to prayer. We pray for a loved one. The prayer would have been answered, perhaps a start was made in answering that prayer; but Satan interposed. Evil associates, perhaps, persuaded the young man not to go to prayer-meeting; and God *permitted* Satan to go on with this work." While my friend was speaking it occurred to me that one of the great hindrances in the way of having our prayers answered in doing away with saloons is that Satan *constantly* interposes his influence and work everywhere. He tampers with the officers of the law; he influences the judges; he gets control of the police and the police courts. Shall we give up to Satan? God forbid! Satan can go so far, but not beyond that limit. And *we* can hinder *Satan*. Our prayers hinder him, and are a restraint on him. We may never in this world be able to understand just why Satan is permitted to meddle with human affairs, and to hinder and delay the answers to the prayers of honest Christians; but God knows. We are weak, but he is mighty. "Shall not the Judge of all the earth do right?"

Many of our prayers, while not absolutely selfish or harmful, are of no particular importance. James says, "Ye ask, and receive not, because ye ask amiss," and we may call this still another hindrance. A little girl prayed every night for several days that she might be permitted some time in life to see Queen Victoria. Very likely she prayed with childish faith. Now, this is a sample of prayer where no particular good can come of it. The little girl was young, and Queen Victoria was very old; and it seems quite likely that such a prayer will not be answered. And more important than all is it that no particular good could come if it *were* answered. I do not suppose the little girl had even thought about any good coming from it. Jesus said, "If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you." If the same spirit that actuated the Savior while he was here on earth actuates and helps us, we shall be constantly seeking and praying for something for the good of all humanity. We shall be hungering and thirsting after righteousness, and that the gospel of Christ Jesus may be brought to all the world; and while we are in this attitude of heart, while it is the inspiring theme of our being, our petitions will be something for the good of humanity in general — not for self and for self alone, and not for idle curiosity or for some notion or fancy of the moment; and this hungering and thirsting after righteousness will not at all unfit us for building great cities and connecting them with great railways. It will not at all unfit us for extending electric wires and telephone wires to the home of the humblest person, for the constant thought will be of God the Father, and of his love to us his children; and thanksgiving and praise shall be to him for evermore. Before we can claim these promises we must be in *harmony* with God and his plans, and then shall come to pass that precious promise, "*Before* they call I will answer."

Digitized by Google

A POTATO THAT WILL NEVER SCAB; THAT $1000 OFFER FOR A BARREL OF POTATOES.

I have been holding my breath somewhat since that offer went out (see page 64, Jan. 15), for fear I should have to pay the money; but I began to breathe a little easier when nobody seemed inclined to take it up. The following is the nearest to it of any thing we have had; in fact, it is the only communication I have had on the subject:

I will send you by mail one potato. I don't know what the name is. I bought them of a man by the name of Newel, so I call them "Newel." If you know the right name, let me know. If you want more of them I will send them. I have had them for five years. They have never shown any sign of scab since I have had them, and all other varieties have scabbed. I got five varieties of you three years ago, and I have discarded all of them. The Newel has gone through wet and dry, hot and cold, bugs and every thing else, and has come out on top every time.

Tekamah, Neb., Feb. 2. J. S. ROBINSON.

Well, the above is pretty good. If these potatoes have been grown for five years, and have never shown any sign of scab, it certainly looks promising. Now, when our great seed and plant men get something of that sort, they usually buy up the whole stock so as to monopolize the market; but I do not believe I want to do that way. We want these new potatoes to have a thorough test in widely different localities; and I would suggest that friend Newel offer them for sale at such a price as he thinks will be fair; and if it really turns out to be a nice potato, a good yielder, one that never scabs, the $1000 will be forthcoming, for it will be worth a million or more to the world, even if *I* do not get the profit of it. There may be some question as to who should have the $1000. My intention was to give it to the man who originated and brought to notice the potato. And that reminds me that there is an advertisement, in this issue, of potato seed for the benefit of those who wish to introduce new varieties. One reason why I believe that a scab-proof potato can be produced is, there is a difference in the potatoes we have. Last fall we grew several bushels of Rural New-Yorkers that were not scabby a particle, while a strip of Carman No. 1, right alongside, were scabbed badly; and my impression is that the Rural New-Yorker is, as a rule, less liable to scab than almost any other potato. Perhaps I might add, for the benefit of those who wish to go into the business of growing new varieties of potatoes, that it is like growing new varieties of strawberries. If you should plant a whole acre of seedlings, and as closely as they could stand (several growers have done this very thing with strawberries) you might watch and care for the whole lot, and find, after you had got through, not one of them was in any way superior to the berries or potatoes we have already. A good many kinds are "trotted out" every season, with the claim that they are *away* ahead; but look at the kinds that have been boomed and then dropped out of sight, say within the last 25 years, if you have been watching plant and seed catalogs than length of time. Will friend R. please tell us more about that scab proof potato? Is it early or late? How does its yield compare with others? What is its quality for table use? I judge the potato to be an early one, as one sent me was already sprouted; and I wish to say that it is a very handsome potato.

Since the above was put in type we have received the following additional information from friend Robinson:

Mr. Root:—I have about 30 bushels of those potatoes. I could not take less than 75 cts. per bushel, for I believe fully half of the potatoes in this part of the country are frozen. It has been extremely cold here this winter—26 below zero yesterday morning by the government thermometer, and 30 by others.

As to the name, I could not find out. An old gentleman by the name of Newel, living in Iowa, was visiting a son living here on a farm, and the old man came over and brought a bushel of those potatoes; but his son had moved to town, and had no place to plant them. He told me about them, and what wonderful potatoes they were. He said he paid $2.00 for the bushel. I paid him $2.00 for about two-thirds of the bushel. The Newel family have all moved away, and I don't know where.

Tekamah, Neb., Feb. 10. J. S. ROBINSON.

DISEASES OF THE TOMATO.

This is the title of a bulletin sent out by the Florida Experiment Station. It is written by Prof. P. H. Rolfs, whom it was my good fortune to get acquainted with while I was in Florida. This bulletin gives most thorough directions for treating all diseases of the tomato, besides discussing the matter of insect enemies. Prof. Rolfs recommends the Bordeaux mixture for the black rot, and says if it is made right, and applied with sufficient thoroughness, it will surely kill the fungus and allow the tomato to start out with a new and vigorous growth. If you want the bulletin, write to the director of the Experiment Station, Lake City, Fla. It is furnished free to all Florida people, and I presume it will be sent to anybody if a stamp is inclosed. This one little bulletin may be worth hundreds of dollars to anybody who makes tomato-growing a business.

THE BENSON RENOVATOR COW PEA.

On pages 668 and 705 for last year I made favorable mention of Benson's new cow pea. Since that time I have been watching the *Practical Farmer* very closely, especially Prof. Massey's answers to questions in regard to cow peas in general; and my impression is that there are early varieties of cow peas already well known in the South, that possess nearly all of the desirable qualities of the Benson pea. Of course, I am not the one to judge, as I am comparatively unacquainted with the many different varieties of cow peas grown in the South. Since friend Benson has used in his circular what I put in GLEANINGS, a good many inquiries have come in to me. Here is one of them:

I am very much interested in the renovator cow pea. You experimented with it last year. Can you not give to us fuller particulars in regard to your treatment of and success with the pea? Did you plow it under? If so, how did you manage? Did stock eat the pea hay well? When did you plant, and when did you harvest? Did the peas mature fully?

Battle Creek, Mich., Feb. 2. W. H. LITTLEJOHN.

Digitized by Google

I did not plow the vines under, any of them; in fact, we left them until they were killed by frost about ihe first of November, to allow as many of the peas as possible to ripen. I am inclined to think the strain is not yet perfected, for different plants blossomed at very different times. Some of them were covered with pods that were dry, while others were full of pods all green, and still others hardly yet in bloom. All the seed we saved was from the earlier ones. When frost caught them the whole plot was covered with a great mass of vines and foliage. I did not plow them under, as I got the impression they would be worth just as much to be plowed under in the spring. I tried to feed them out to our horses, but they did not seem to take to them. My impression is, it was because they had not learned how. I am sure cows will eat them, and I have no fear but that horses would also after they have acquired a taste for the pods filled with the mature peas. I did not record the date they were planted, but it was some time in June. With the chance they had, they made a most remarkable growth; but I have seen very much of this same rampant growth from the cow peas we obtained from the South, only these latter did not produce ripe seed in our locality.

SWEET CLOVER, AND WHAT IT IS GOOD FOR.

THE above is the title of a 12-page pamphlet that we are prepared to furnish free of charge to bee-keepers or anybody else interested in this kind of clover that grows *better* on ground so poor that nothing else will grow on it. The leaflet is made up of suggestions from bee-keepers and others who are well acquainted with the clover. It also discusses fairly, I think, the question as to whether sweet clover can be called a noxious plant under any circumstances.

THE KEELY MOTOR.

Just about the time GLEANINGS was started, the scientific world was full of excitement in regard to the new force discovered by Keely, that was to supersede steam, electricity, and every thing else heretofore known. Almost every periodical in the land boomed Keely as one of the greatest of modern inventors; but the *Scientific American* denounced him first, last, and always. They said he was a fraud and a humbug, and that he dared not make a public exhibition of his motor, in a way that honest discoverers do. He gave some exhibitions, it is true; but nobody was permitted to come on to the stage, nor would he come out in front before people. He stood by a little window keeping himself a good deal out of sight. The *Scientific American* declared the wonderful results he displayed were done by the power of compressed air; and when they suggested proving their position by exploring the premises he pretended to get into a towering rage. Notwithstanding, men of great wealth invested their money in Keely stock, and he became almost if not quite a millionaire before he ever gave the world any tangible result. For 25 years he duped innocent people who happened to have capital. One of his largest victims, and one of his best friends through all these years, was a lady. So well was his secret guarded that the papers declared it had died with him, and some even now pretend the world had suffered a great loss. You know GLEANINGS has had considerable to say about people who possess wonderful secrets that they will divulge only for a certain sum of money; and GLEANINGS still insists that no good thing ever came along in this line. Keely succeeded in humbugging people, and making at least a large part of the world believe he was an honest inventor, while he lived in all the affluence and comfort that money could procure during those 25 years.

While he was living nobody succeeded in gaining an entrance to his laboratory and workshop; but after his death, what then? I believe there was some little effort made to cover up his hypocrisy and rascality, even after he died; but a reporter from the *Scientific American* succeeded, with several scientific men, in having the whole premises opened up and explored; and in a recent issue there are half a dozen photographic views exposing the whole thing. In a concealed cellar under his laboratory was an immense steel sphere with strength almost if not quite able to resist the recent tests of cannon at Sandy Hook. From this tremendous reservoir of compressed air Keely had tubes leading to his humbugging machinery. With air under a pressure so that it was forced with a power almost equal to that of gunpowder, no wonder he astonished people, and then called it "etheric vapor," and made a pretense that this astonishing power was evoked from "vibrations," because he drew a fiddle-bow across the edge of a tumbler! In addititon to the discoveries, a man has been brought forward who helped him make his humbug apparatus. Keely robbed rich people—people with immense capital, as a rule. The Electropoise humbug, which it has been our privilege to so thoroughly ventilate, was a little different, in that the owners robbed *sick* people, and are still taking the hard earnings of poor women who do washing for a living, providing they can find victims who do not happen to be posted. And by the way, dear friends, what do you think of a man who would live on other people's earnings, enjoying every thing that money can purchase, with such a prospect before him as Keely must have had just before he died? He evaded the truth a long while; but *death* brought his iniquity to light. What shall it profit a man if he shall gain the whole world and lose his own soul?

Many have been the days when I thought I'd write a few encouraging words as to how I appreciate GLEANINGS. Mr. Matthews took it quite a while before I took notice of it. One Sunday evening I happened to pick up a number. I can never tell how much I enjoyed reading your Home talks especially. While I am no flatterer, I believe in letting one know how much good he is doing in this life—not after he is gone from this world where they know nothing of it.

MRS. S. D. MATTHEWS.

Hamilton, N C., Jan. 22.

Digitized by Google

DOCTORING WITHOUT MEDICINE.

Almost all my life I have been troubled more or less with sore feet. I presume one reason is, that during my childhood I had my feet frosted. Since then I have been troubled with chilblains in winter and corns in summer. About a year ago what seemed to be a corn or chilblain, or both together, became very troublesome. It started first near my little toe, and finally became so swollen that it not only made me lame, but it affected my whole right side, and made me about sick. I limped up to the doctor's office, and asked him if he would feel imposed upon if I wanted him to doctor my *feet*. He replied something like this:

"Not at all, Mr. Root. On the contrary, I am always glad to do any thing I can to relieve any kind of pain or suffering."

After he had taken a look at the inflamed spot near my toe he said he could fix me out all right, but it would take a little time. First, I was to get an old boot, or, better still, an old shoe, and cut a good-sized hole through, right over the inflamed spot. Then I was to give that part of my foot plenty of air. I ventured to object, on the ground that I could not go to meeting attired in that fashion.

"Oh! yes, you can go to meeting. Wear a black stocking—something just as near as possible the color of your boot or shoe, and few if any will notice it; and just as soon as your foot gets well enough you must give your feet more ventilation. Corns and chilblains are both Nature's cry for more air. Many people suffer greatly because they do not give their feet ventilation enough."

"Why, doctor, you don't mean to say that my feet want to breathe, do you? I think I have heard of people going barefoot in order to give their feet a chance to breathe, but I did not know that mine were of that kind."

"Well, I guess you have got it about right, Mr. Root. Our feet do need to breathe. Few people can stand it to wear rubber boots, because they are so completely impervious. I believe you have been wearing boots mostly in winter time. You want to get rid of your boots, and buy some shoes that lace very far down, say as near to the toes as possible; and leave the lacing loose enough so the air can get in. With this foot that is so inflamed and feverish you really must have that kind of shoe. Get a bicycle shoe that laces away down. If your feet get cold, wear coarse porous woolen stockings; then if your ankles are cold, have some woolen leggins; but let your feet *breathe*."

"Why, doctor, I am afraid I shall have to take back some of the spiteful things I have said about toothpick-toed shoes. From what you say, that gable-end air-space out in the point of the toe has a method in it, after all."

Well, I followed the doctor's advice, and, although almost two years have passed, I have not had any chilblains at all, and my corns have not troubled me to speak of. I used to imagine that I must have boots in winter to keep my ankles warm; but now I really enjoy wearing my bicycle shoes all winter, protecting my ankles with extra woolen covering during severe weather. While visiting with my friend Vankirk, in Washington, Pa., we were talking over this matter, and he said he had read somewhere that Abraham Lincoln was in the habit of slipping off his shoes when he was writing at his desk, giving his feet a breathing-spell. Now, if I remember correctly the doctor did not give me any medicine at all; but I would ever so much rather pay a doctor for giving me sensible advice like the above, than for dosing me with drugs; and his little talk about ventilation for the feet did me so much good I am glad to suggest the matter to others who may be sufferers like myself. For a good many years I used to advise everybody indiscriminately to go barefooted in summer, as a rational cure for troublesome corns, and Mrs. Root used to remonstrate. She asked me if I wanted to see *her* going around barefoot. I told her I would rather see everybody going barefoot than to see them suffering as I suffered from troublesome corns. My favorite way of washing my feet in the summer time is to wade through the lawn when the grass is covered with a heavy dew. You see this gives ventilation, coolness, and a water bath (of *pure soft* water) besides. Now, the doctor suggested to me a way of ventilating the feet without going barefoot. By the way, I have almost all my life objected to shoes that lace up, because it wastes so much valuable time fastening with shoestrings; but I think now I would rather fuss with shoestrings than to have my temper spoiled by troublesome corns. Wouldn't you?

Years ago our good friend Orange Judd, of the *American Agriculturist*, recommended changing the shoes, and, if necessary, the stockings too, during the day, and taking another pair. He said it did the shoes good to give them a rest. My impression is it did good by giving the feet a breathing-spell rather than giving the shoes a resting-spell.

Our Roll of Honor.

When I made my offer of GLEANINGS a year free, and a little present besides, to those who had taken it 25 years or more, I made a rough guess that there might be 50 among our present subscribers who commenced with Vol. I. No. 1. But to be on the safe side I told the boys to print 200 cards to send with the little paper-weight. Well, the 200 cards are gone, and still the names come every little while. Why, it almost begins to look as though every one who subscribed during that first year is still a subscriber; and I confess the thought has been to me both encouraging and inspiring. May God bless you, each and all, for standing by your old friend A. I. Root during all these years.

I think I took GLEANINGS in 1879. Perhaps it is on your books; but I *do* know that I have paid mostly

Digitized by Google

from the bees for a nice farm of 70 acres, and a new $1200 house and $700 barn, windmill, and waterworks. I consider my success with bees due to GLEANINGS. One year when I had 20 colonies I cleared $25.00 per hive, or $500. I have kept bees since I was 17 years old, and taken GLEANINGS since I was 19.

Calamus, Iowa, Jan. 21. D. WAGNER.

In looking over the time from 1873 to 1899, during which GLEANINGS has been a monthly (and later a semi-monthly) visitor, it brings back many happy and pleasant recollections and thoughts that I have enjoyed during all those years; and it also brings sad recollections of many who were its correspondents years ago, who have passed over to that great beyond; and soon, too, we the remaining ones of the 1873 subscribers will also be numbered with those who have preceded us. H. H. BROWN.

Light Street, Pa., Jan. 25.

Dear Mr. Root:—As you make up a round-up of your old friends, I wish to be counted among them.

I do not agree with you on all subjects, but I do follow some of your advice. You told us once that, in case of disaster to the bees, we should retreat in good order, like a general losing a battle, and be ready in good order for the next season. But with me the last *ten years* have been mostly on the retreating order, and always retreating wears the best general out. I wish also to thank you again for favors received by me in our past dealings, as extending credit or doing better than advertised. AUG. LEYVRAZ.

Francis, Fla., Jan. 26.

Wife says I began in 1874 with my bees in the chamber windows of my home in Toledo, Ohio. I had been a reader of GLEANINGS previous to that time, and possess almost all the back volumes up to the present. My first foundation-mill was made under my supervision. Electrotyping both sides of a sheet of Root's foundation, and sweating it on to a set of photographer's rolls, I used it for several years, and then purchased one of your $100.00 12-inch machines. My first visit to Medina was for that purpose. I think it was the same year you erected your new building. Time has dealt kindly with me through life's pathway; but during my earlier years of bee keeping it was more or less rough and rugged. When we learn of the extreme suffering experienced by the poor in the North we wish all could enjoy the climate of Florida as has been our privilege for the past 15 years.

New Smyrna, Fla., Jan 13. JOHN Y. DETWILER.

I am one of the number that have taken GLEANINGS since Vol. I No. 1, and have all the numbers now except a few of Vol. III., and occasionally one I have loaned to some one, that has not been returned. When my father was about my age he had one of the best taverns in Western New York, and kept several wagons running, buying hay, corn, oats, etc., to feed the immense droves of stock that, night after night, put up with him. Just like cutting a thread, his whole business was killed when the railroad was completed from Buffalo to New York. Just now my business (bee-keeping) is cut off just as completely by the timber men. My honey crop, that has been from 500 to 700 gallons per year, was 60 gallons in '98, and I am not certain but I may have to feed the equivalent of the most of that to bring them through the winter. Poplar has been almost our only source, and it is being cut out very rapidly, and there is nothing to take its place. It looks as if one bee-keeper must quit the ranks or move. G. W. GATES.

Bartlett, Tenn., Jan. 2.

Our minds do seem to run nearly in the same channel in many things; and our ages are so nearly alike I thought I must write you. I do not know how long I have taken GLEANINGS. The oldest full volume that I find is 1876. I think I had parts of volumes before that. Since '76 I have taken it all along, besides others. I have a small load of bee literature. I have your photo with Blue Eyes on your lap; also house apiary with, I suppose, Ernest and Maude on the stairs. I do hope Maude may get well again. Please tell her so for me. I have to wear a "harness" too.

I am 60 years old. My father died when I was 2½ years old, and left mother with three little boys. I reside in the old home. It is back among the country hills of the town of Union. I am the only one left of our family. We have two children, both married. Our boy lives with us. They have four, which makes eight in our family.

I keep bees and poultry. I have kept bees 30 years. I began with one box hive. I work them barehanded. Our location is poor. Were it not for buckwheat we could not keep bees here. My present stock of bees consists of 140 hives, all kept at home. I winter indoors. If I were to start anew I might try chaff hives and outdoor wintering. I have never met with any serious losses in bees. You will probably smile when you read this part. I have some of the American hives gotten up by H. A. King, of Ohio. The bees in them seem to be as hardy as Concord grapevines.

Hooper, N. Y., Dec. 31. D. F. LASHIER.

I have been a subscriber from the first quarterly you issued, and have kept them all. I have also taken the *American Bee Journal* since 1867 regularly, and received a few copies before the war, during which time it was discontinued. Since my earliest recollection I have liked bees. Then my folks kept them; and how I was delighted when swarms came out! I would get in the midst of the swarm, and often bareheaded, in spite of orders to keep back; and how good the honey tasted in those days! My father, in the summer of 1856, gave me a swarm, and I assure you it was prized and looked after with interest We then lived in York State. In the fall of 1857 we came west, and I sold my two swarms and father sold all of his. In the spring of 1860 I bought a swarm in a box hive in this place, and have not been out of bees since. Since 1866 I have kept my bees in movable comb hives. GLEANINGS has at all times been a welcome visitor, and I have much admired the energy of its founder, from the windmill days up to the present time. His enthusiasm from the time he wrote in the *A. B. J.* as Novice has been pleasing to me. When the bee-fever struck me I sought after and received all the books on bee culture that I could hear of, printed in this country, and also read all translated from foreign writers that I learned of. I have taken nearly all the bee-journals of this country till within a few years ago. I received five different ones for several years; all but two are now of the past. I have dealt with the Medina firm for many years, with satisfaction.

I wish GLEANINGS, its founder, and all members of the firm, well. I feel quite well acquainted with the Root family, although I have not met any of them personally. I think much of all the departments in GLEANINGS They are of much help to its readers.

Our honey crop has been all the way from nothing (one season) up to 13,000 lbs., an average of 153 lbs. per colony, about two-fifths comb honey—the best year we have had in all. F. A. SNELL.

Dundee, Ill., Jan. 4.

I looked up a file of old bee-journals that had not been examined for 15 or 20 years. I found most of the early numbers of Novice's GLEANINGS IN BEE CULTURE, the oldest bearing date Feb. 1, 1873. I must have commenced taking it at the beginning, and I do not think I have ever missed a number up to the present time.

But this was not my first acquaintance with A. I. Root, or, more properly, with his writings. In 1867 I commenced taking the *American Bee Journal*, published in Washington, D. C., and edited by Samuel Wagner. Mr. Root was then contributing a series of articles to that journal, one or more appearing in every number, at first over his own name, and afterward over the *nom de plume* of "Novice," which he kept up for several years It was my interest in these articles, and my liking for the manner and spirit of the man, that induced me to lose no time in subscribing for his paper.

It would indeed be pleasant to have a meeting of some of these old subscribers to GLEANINGS and contributors to our bee-journals of some 25 years ago, say at Medina, some time next summer. Many of them have, no doubt, left this stage of action, and have gone to join the great silent majority. But those who may be left might get together then.

While hunting up the first volume of GLEANINGS I found a file of the *American Bee Journal* from 1867 to 1873, both inclusive, which brings up many reminiscences of the contributors and the subjects then discussed by them in it and in GLEANINGS about the same time. It does look, as you say, as if all the most important things in relation to bees and bee-keeping were pretty thoroughly gone over. There was a new era in bee-keeping—the invention of the movable-comb hive, the introduction of the Italian bee into this country, the discovery of the centrifugal honey-extractor, etc. Of course, these matters were largely discussed. But the natural history of the bee from a scientific standpoint, and the various subjects arising therefrom, were thoroughly studied and discussed, and some of them settled.

The hive question, with new inventions and many so-called improvements, was largely discussed; but it

Digitized by Google

seems that it is not settled yet. The writer took some little part in this discussion in 1870, and among his reviewers was C. P. Dadant, then quite a young man. And now, after an elapse of nearly 30 years, we find him hammering away in GLEANINGS for the past two months *along the same line*—not settled, but a great deal of the rubbish has been cleared away.

THADDEUS SMITH.

Pelee Island, Ont., Dec. 26, 1898.

I commenced bee-keeping April 10, 1877, with one stand, and have made bees pay. I have 130 stands at present, and have produced several tons of comb honey. I have taken GLEANINGS right along since 1878.

Oakley, Ill., FRANK BAKER.

I have taken GLEANINGS these many years. I don't remember whether I have taken it since the first number or not; but I remember well when it was printed by wind, since which time it has been printed by steam and edited by wind; but it has been a very genial and salubrious kind of wind, however—any thing but a dead calm for me. JOEL HILTON.

Los Alamos, Cal., Jan. 16.

I took GLEANINGS before Blue Eyes was born, for I remember reading about her. We do not want a year's subscription granted us; for if it had not been for GLEANINGS we should not be to-day where we are. I should like to have Mr. Root visit us and see our grand new greenhouse we have built. It is 110 feet long and 30 feet wide. J. W. NICODEMUS.

Newcomerstown, O., Jan. 11.

I think I am among the first to take GLEANINGS. I can remember your rejoicing over the advent of Blue Eyes. I have been reading it very nearly ever since. It always has been a welcome visitor. I like your Home Papers, Notes of Travel, and J. H. Martin's Rambles. The *American Bee Journal* is one of my favorites with GLEANINGS; and may they prosper. I was born in Jefferson Co., O., Feb. 11, 1828.

Nevada, Iowa. W. K. SMITH.

That souvenir carries me back in mind nearly a quarter of a century, when GLEANINGS was a 25-ct. publication, less than two years old, but to my mind it was very large for its age. It evidently possessed wonderful vitality and a large amount of brains, as is evidenced by its progress up to the present time. Although I am past eighty years old, my interest in GLEANINGS does not decrease. T. H. PEAVEY.

Epworth, Ia.

A. I. Root:—I have not been a subscriber nearly as long as some of the veterans, but I subscribed soon after hearing of GLEANINGS and at one time it saved me ten dollars in preventing my buying a farm-right to make the Golden hive, which GLEANINGS showed up to be a humbug.

Also am well pleased with the stand you take in the Hall water-cure, Electropoise, and other like humbugs, and very much enjoy your Home Papers, Notes of Travel, Rambler's letters, Miller's Straws; in fact, all of it. I want Ernest and the boys to give the "old man" all the space he wants; and when he travels have him take more time. J. J. MCGOWAN.

Swan Quarter, N. C., Feb. 5.

I first subscribed for GLEANINGS in 1879, having seen your advertisement in the *American Agriculturist* ("Friends, if you are in any way interested in bees or honey," etc.). I was 20 years old at that time, and have kept bees ever since; also had bees one year before that. Since my marriage, 12 years ago, I have made bee keeping my main business, with varying but usually excellent success. My largest crop of honey was taken in 1889 from 73 colonies, spring count, and was 13,000 lbs. extracted honey. I have been greatly indebted to GLEANINGS for my success. Have purchased most of my supplies from you. I have always read and appreciated the Home Papers. On one occasion I read one for a sermon in our church when our pastor was away. For a good many years I saved and carefully put away all my GLEANINGS, but have given away a good many to neighbors; also sold some numbers to you in answer to your call for back numbers. G. H. POND.

Bloomington, Minn., Jan. 9.

I have had as many as 150 colonies of bees to care for, the greatest yield in one season being 7000 lbs. of honey. I bought sections of you when you ran by windmill power, and rejoiced with you when you put in your first engine. I have drifted west, and am building up a new apiary in Oregon. People here are getting interested in the bee business very much; almost every one has a few colonies in box hives; but a great many are transferring to movable-comb hives, and are becoming interested in progressive literature.

I join the Editor in wishing we could all be together and have a big talk, and I join him too in his opposition to vice and immorality. JESSE W. THORNTON.

Oak Creek, Ore., Jan. 10.

It may interest Mr. A. I. Root to know that I have read GLEANINGS continuously since 1876, though I have not taken it myself all that time, and so am not entitled to any prizes. Two neighbor bee-keepers' and myself for several years cast lots to decide which we would take, and took about all the bee-papers published in America, and exchanged for reading. But, what is of more account, I became interested in the gardening articles through the enthusiastic, entertaining happy way in which they are written, and it is very largely through their influence that I now have a fruit and vegetable farm of 40 acres, and a very congenial occupation and better health. Although the place is young yet, it already yields a good living for my family and is yearly becoming more profitable. "Calamity howlers" get no sympathy with us.

Covert, Mich., Jan. 23. H. D. BURRELL.

Mr. Root:—Reading the letters of the veterans makes my mind run back to about 1876, when by some means I got a copy of GLEANINGS. At the time I had twelve or fifteen colonies of bees, and that was about all I had of this world's goods. I remember how I read and re-read it. Then I sent for back numbers and subscribed for GLEANINGS. Then I did get interested in bees and GLEANINGS. I talked bees and GLEANINGS to my friends until I actually got people to subscribe for it, who were not interested in bees.

Say, friend Root, do you remember the first order I gave you for goods? I had to ask you for credit, as I was so desperately poor: but I told you I was honest, and would do as I agreed. To-day I own a farm of over two hundred acres, and do not owe a dollar on it, just outside of the town of Syracuse; and, by the way, it is one of the best farms in Northern Indiana. I do not say this boastingly. I have the bees to thank for it. For fifteen years I made bee-keeping a specialty—did nothing but attend to my bees. That is when I made the most money in my life. Several years I sold over one thousand dollars' worth of queens per year, besides bees and honey I sold. I remember how I longed and wished for the time when GLEANINGS would come; and when it did come, what a feast! and how I did enjoy reading it! Those were happy times. How I enjoyed the Home Papers! and how vividly I remember some of the first ones to this day, especially those written about yourself. You do not know how much good they have done me. My bee-keeping life—that is, when I made bee-keeping a specialty—has been the happiest part of my life. I still keep bees—about 100 colonies. By the way, I have some fine registered stock, both cattle and sheep; but I have nothing on the farm that pays as well for the money invested as my bees. I attribute my success in bees to always trying to apply the golden rule.

Syracuse, Ind., Jan. 4. I. R. GOOD.

Potato Seed-Ball Seed.

Genuine—hybridized. Thousands never saw this rarity; thousands more have tried in vain to get the seed. Don't miss this one opportunity to get some and try your hand at growing new seedling varieties of potatoes. Fortunes have been made with seedlings, and

POTATO SEED-BALLS.

Your Fortune may be in One of These.

Nothing that grows is more in ensely interesting. They will produce an endless variety of kinds, colors, and shapes. As easily grown as tomatoes. My seed is a wonderful success, and will be a prize to every one. I send complete directions. Order to-day.

Large packet (100 seeds), with catalog of bargains, ONE DIME, or 12 cts. in stamps; 3 pkts., 25c, prepaid. ☞ 300 mixed varieties of the most beautiful flower seeds free with prompt orders naming this paper.

Address A. T. COOK (Seedsman), Hyde Park, N. Y.

In writing, mention GLEANINGS.

Digitized by Google

CATALOGS.

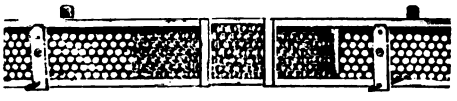
We are sending off catalogs as fast as our press can turn them off, and hope to complete the list before the end of March. Just as we go to press we are printing our wholesale lists for dealers and jobbers. If any who are entitled to these do not receive one before March 1st let us hear from you. The wholesale list is only for those who keep supplies for sale, and the first order must be for at least $50.00 worth or over.

CARLOAD SHIPMENTS.

Since our report a month ago we have shipped fifteen carloads as follows: One car to our Northeastern branch at Mechanic Falls, Me.; one to Chicago; one to Philadelphia, and one to Syracuse, N. Y.; a second car to W. S. Pouder, Indianapolis; one to Jno. Nebel & Son, High Hill, Mo.; one to Jos. Nysewander, Des Moines, Iowa; one to D. M. Edwards, Uvalde, Texas; one to M. H. Hunt & Son, Bell Branch, Mich.; and five more cars for export, besides a car of boxes. Within the next month we expect to ship fifteen cars more, orders for which are already entered.

KREUTZINGER'S ENTRANCE-CLOSER.

This device was recently illustrated and described by the inventor in the *American Bee Journal* It is made of zinc having ⅛-inch perforations bound with tin; is adjustable from 11⅞ to 14⅛ inches long for 8, 9, or 10 frame hives, and for entrances from ⅜ to 1 inch deep; is firmly attached to the hive by tightening two screws, which can generally be done with the fingers. The entrance closer is used for moving bees or keep-



ing out mice, or for any other purpose you wish to shut the bees in, and still leave ventilation. Price 25c each, postpaid, or 20c with other goods; $1.85 for 10; $17.50 per 100.

Special Notices by A. I. Root.

FRESH INVOICE OF NEW SEEDS, ETC.

YORK STATE MARROW BEANS.

Notwithstanding the scarcity of seed beans, I found six bushels of very nice ones, grown by a neighbor, from seed from our own furnishing. Quart, 10 cts.; peck, 65 cts.; bushel, $2.25.

ROCKY FORD MUSKMELON.

We have just received 10 lbs. of the finest strain of seed, direct from one of the best melon-growers in Colorado, guaranteed to be all right. Price: Packet, 5 cts.; ounce, 10 cts.; 1 lb., $1.40. If wanted by mail, add 10 cts. per lb. extra

ALSIKE CLOVER.

First, we have just bought 47 bushels of about the handsomest alsike clover we ever got hold of—remarkably clean, and free from any seed of any other sort; bought direct from the grower; and yet we are enabled to make the lowest price we ever sold alsike as follows: 1 lb. by mail, postpaid, 20 cts.; by express or freight, 1 lb., 12 cts.; peck, $1.40; half-bushel, $2.75; bushel, $5.25. The above price includes sack to ship in.

SEED CORN.

Grown especially for us. Four bushels of Kendel's Giant. Quart, 15 cts.; peck, $1.00; bushel, $3.50. We have also a good stock of Ford's Early, Stowell's Evergreen; Late Mammoth Sugar, and Improved Shoepeg, by the same grower as above. Quart, 12 cts.; peck, 75 cts.; bushel, $2.75. All the above seeds may be fairly called "home grown." I know who grew them, and that they are of last year's growth. Where we get clear out, and are obliged to go to the wholesale seedsmen in the great cities, we do not know so well what we are getting as when the stuff is grown in our own neighborhood.

H. A. MARCH'S SNOWBALL CAULIFLOWER AND JERSEY WAKEFIELD CABBAGE.

There is just now a big call for March's justly celebrated strain of Snowball cauliflower and Jersey Wakefield cabbage. Friend March has sold out, and will not have any more till another season. We have just 2 lbs. of the cauliflower seed. Price, ⅛ oz. 25 cts.; ¼ oz., 40 cts.; oz., $1.50. We have 6 lbs. of the Wakefield cabbage, *stock seed;* oz., 20 cts: 1 lb., $2.50. If you want the H. A. March strain, and no other, you had better order soon, before it is gone.

BEST OF ALL BEANS.

We have about two barrels of these, raised two years ago, that we did not intend to offer for seed; but as new ones are so exceedingly scarce, and as these germinate quite fairly when tested in the greenhouse, we offer them at about ½ the market price as follows: quart, 8 cts.; peck, 50 cts.; bushel, $1.75. Perhaps I might explain that this is a green-podded wax bean —one of the staple varieties in Florida. There is some complaint that it does not suit as well here in the North; but we like them very much, both as a string bean and as a shell bean. They are worth what we ask for them, for table use.

KIND WORDS FROM OUR CUSTOMERS.

Your seeds are much below others', except in quality, which is A No. 1. A. C. BUGBEE.
Lochiel, Ind.

Gleanings is a help to me in many ways—as a beekeeper, a gardener, a farmer, and a Christian.
Atco, N. J. C. E. VARNUM.

I find the A B C of Bee Culture to be a first-class beebook. I regret there is no Spanish edition of it.
San Francisco, Chile. A. E. COX.

I am much pleased with the hives. I wonder how you can do so much first class work for so little money.
North Weare, N. H. J. A. WOODBURY.

Persons who see my circulars say The A. I. Root Co. shall have their jobwork in the printing line hereafter. T. H. COOK, M. D.
Scio, O.

It would be impossible to produce any thing in the shape of foundation to excel the samples of the new Weed. J. A. GOLDEN.
Reinersville, O.

The septum in the comb drawn out from the new-process foundation is tougher than that made in the old way. JAMES L. HOYAL.
Spring City, Tenn.

Every thing in my order checked out exactly. So accurately are they cut that a wayfaring man need not have any trouble in putting them together.
Palmy, Texas. W. B. BARBEE.

The 500 cards were O. K. We appreciate your interest in our church work in doing it with such promptness and at such satisfactory prices
Grafton, O. (REV.) W. A. LEARY.

I inclose fifty cents in full of your bill for ad't in GLEANINGS. My honey sold so fast that it was all gone before I realized it. EMIL J. BAXTER.
Nauvoo, Ill., Dec. 19, 1898.

Your sample of Weed new-process foundation is received. It is certainly the most beautiful and most nearly perfect I have ever seen. It is as clear as glass. To say that I will use it regularly will be superfluous.
Augusta, Ga., Nov. 19, 1898. H. J. TWIGGS.

The Corneil smoker possesses the qualities of good size, good draft, gives large volume of smoke with little attention: simplicity, strength, easy access to firebarrel; lightness; good shape, and is sold at a low price. W. S. HART.
Hawks Park, Fla.

Digitized by Google

The Taylor comb-leveler ought to be in every apiary. It leaves the comb in fine shape for the bees to fill.
Minneapolis, Minn. WM. URIE.

The goods are all satisfactory. The foundation is superb—the finest we ever had. The Clark smokers can't be beat for material and workmanship.
High Hill, Mo. JOHN NEBEL & SON.

I think GLEANINGS is worth the dollar. I admire your paper much for the information it contains. It is easy to see you understand your business of printing a good bee-paper. Long may it prosper.
N. J. STEIGLEDER.
Highland Springs, Va., Dec. 12.

During the past year we have used many advertising mediums, and the result shows Gleanings to be far ahead of the other mediums used in proportion to the expense. It gives us pleasure to send this unsolicited testimonial. THE MARKET GARDEN CO.
Minneapolis, Minn.

I am a natural cabinet joiner, also a ship-builder and house carpenter, with as complete a set of tools as can be found in the city of Buffalo. You may think strange of my giving you an order. I can only say, I am pleased with your work without the aid of sand-paper, dado fillister, hand-plow, or but-plane.
Buffalo, N. Y. CHAS. G. IRISH.

Please continue to send GLEANINGS and I will remit soon. I have not received it for Nov. 15. Thinking you had stopped it I write I must have it, for I feel lost without it. It is the best gotten up of any paper on bees that I ever subscribed for, and one of the neighbors says he always likes to get it, for it interests him.
Marion, Mass., Nov. 28, 1898. T. N. BRIGGS.

Your Weed foundation, despite a strong prejudice in several quarters against it on its introduction, has literally taken the foundation market by storm. It has three advantages over our home-made product: The bees take to it faster; there is more surface to the pound, with less liability to twist, and it is literally cheaper in most cases than the English foundation. It is of uniform quality, and the consumer knows he is getting pure beeswax with it. F. SLADEN.
Ripple Court, England.

FROM 85 TO 180, AND 8000 LBS. OF HONEY.

GLEANINGS has, in my estimation, always been an up-to-date paper, overflowing with "good things" for the bee-keeper as well as the home generally.

We have had a good season here for bees. It is nearly always the case that we have a good crop of honey here in the Ottawa Valley. This spring we started here with 85 colonies, increased to 180, and got 8000 pounds of extracted honey. L. TOMPKINS.
Billing's Bridge, Ont., Can., Dec. 5, 1898.

GOOD NEWS FOR THE GREAT HEALTH RESORT AT THOMASVILLE, GA.

Our county prohibition election is just over, and we carried it "against the sale" by an overwhelming majority. Everybody is surprised, as Thomasville (the great winter resort) is the capital of this (Thomas) county. You can inform all your friends who come south during the winters, that, after March 1 next, they will find there a *dry*, healthful climate, not marred by bar-rooms and their usual attending scenes.
Cairo, Ga., Dec. 7. WIGHT & MAULDIN.

[We should probably not have given place to the following kind word had not the writer expressly requested us to put it in print. He thinks it is no more than fair, as somewhat of a rebuttal to the severe reflections that have been made on our ways of doing business.—A. I. R.]

I have dealt with A. I. Root since 1884. I wish to say to the public at large, that all who look for honest dealings and the best of goods should give The A. I. Root Co. a trial order. If a mistake occurs they are always ready to correct it; and he who keeps bees for profit should not be without GLEANINGS.

I have now about 200 colonies of bees, all in Root's one and two story chaff hives. Last summer's honey crop was fair—about 3500 pounds of comb honey and 1000 of extracted. JNO. SCHNEIDER.
McIvor, Mich., Jan. 18.

WHAT AN OLD BEE-JOURNAL PUBLISHER THINKS OF GLEANINGS.

I feel like expressing my opinion on the Feb. 1st GLEANINGS. The first thing that took my eye when the wrapper was removed was the last page of the cover. Whoever set and arranged those ad's is an artist of the first water. How could any one help reading all those ad's? You are working so much good humor through almost every page of your paper that it all is *more* than interesting. HENRY ALLEY.
Wenham, Mass., Feb. 7.

[In our department, Pickings, Feb. 1, reference is made to a Japanese paper printed in Tokyo, Japan, by Mr. J. Ikeda. Since that was written we have received the following letter from Mr. Ikeda himself. It is more spicy as written, hence we do not try to make it conform to the English idiom except where really necessary.]

Dear Sir:—I was very much impressed with your first letter to us the other day. Now, what is the matter why you struck my heart? you will ask. Well, sir, I'll try to mention that. My first thought was that your magazine is simply devoted to that line only; and as I publish an agricultural magazine I asked you to exchange. And for that answer you mentioned us kindly, accepted our wish, and, besides this, you asked us to join hands for righteousness and temperance. Righteousness and temperance were the matters which gave me much interest. I am baptized about 12 years ago by a Canadian minister, and after that I feel that it is our duty and pleasure to let all know of the gospel, and do righteousness to our country friends. Especially I felt it most important to organize some temperance society. Perhaps some of our sisters of the World's Christian Temperance Union, of Chicago, know the name of Mr. Sen Tsuda. He is an eminent Christian, and is the first man who taught people to be abstinent from wine, and of the importance to organize the society. On this opinion he published a magazine purely devoted to that line. The name given to that magazine was *Hinomaru* (Red Sun, our national flag's sign). I was the editor while Mr. Tsuda was the publisher. The magazine was published duly, and continued about two years, and finally it was connected with the brother magazine, the Yokohama *Temperance Magazine*. Now I am not directly connected with any temperance society, but I have much interest in the same Allow me to mention some conditions of the temperance movement in Japan. There are many societies, but the most remarkable ones are as below: Tokyo Temperance Society, Yokohama Temperance Society, Hokkai Temperance Society, Woman's Christian Temperance Union. These three first are managed by men, but the latter one is purely managed by women. Each of them has magazines for its use, and have pretty large circulations. In Japan these works are done chiefly by Christians, and the societies owe very much to Christianity.

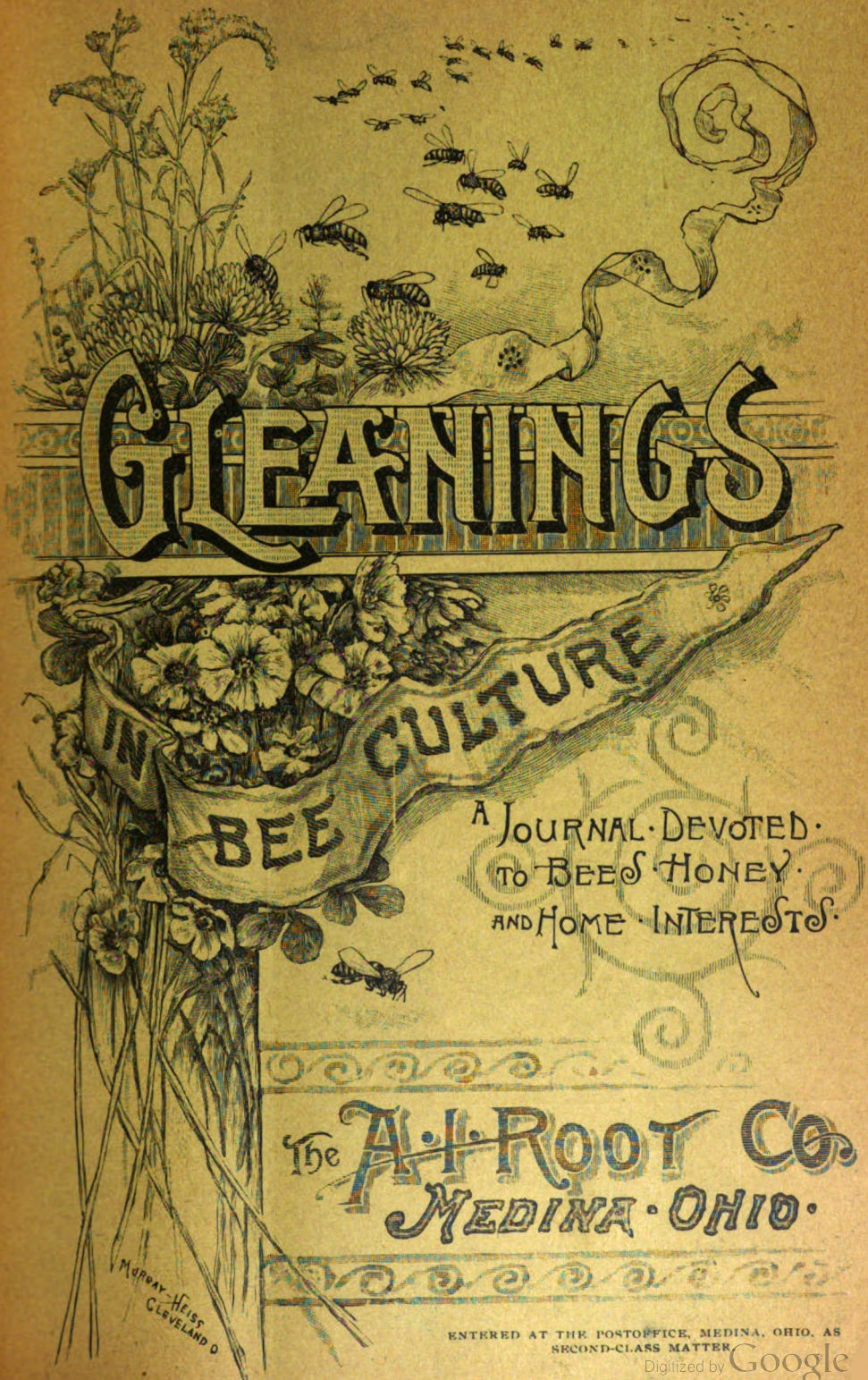
People know, sometimes, the good of Christianity, but are troubled by their drinking; and after they abandon their cup they smoothly enter into the gate of life. As a rule, Christianity is not welcomed by some people; but a temperance lecture is better, or easier, so the ministers and believers are all interested, and have sympathy for it. There were some temperance societies organized by the Buddhists, but soon extinguished; and also there were some by unbelievers; but these in the end were about the same We have found by experience that, if we wish to let a man become a Christian, it is well to let him unite with the society at first. I should like to mention in our paper for bee culture something for the promotion of social intercourse. In all these I shall be much benefited by your valuable paper. Yours truly,
Tokyo, Japan, Jan. 2. J. IKEDA.

The A. I. Root Co.'s Goods At Their Prices.
Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.
Cash for beeswax. **M. H. HUNT, Bell Branch, Mich.**

EARLIEST QUEENS reared in U. S.; increased facilities for promptness; all queens guaranteed. Write for prices from half dozen to 100.
J. B. CASE, Port Orange, Fla.

Digitized by Google

Vol. XXVII. MARCH 1, 1899. No. 5.



ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Digitized by Google

No. 717 Canopy-Top Surrey, with double fenders. Price, complete, with curtains all around, storm apron, sunshade, lamps and pole or shafts, $68; as good as sells for $100.

WHY NOT SAVE IT?

When it comes to buying a vehicle of any kind you may just as well save all the money in the transaction above the manufacturer's price. No need to pay added commissions and expenses of traveling salesmen, middlemen, dealers, agents, etc.

WE HAVE NO AGENTS

but sell direct from our factory at wholesale prices. We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.

IN VEHICLES WE MAKE

Rockaways, Surreys, Traps, Phaetons, Stanhopes, Driving Wagons, Top Buggies, Open and Top Road Wagons, Spring Wagons, Delivery Wagons, Milk Wagons and Wagonettes. In harness we make either single double harness suitable to all the above vehicles and heavy team use.

No. 77—Single Surrey harness $16, good as sells for $25

SEND FOR LARGE FREE CATALOGUE.

ELKHART HARNESS AND CARRIAGE MANFG. CO. W. B. Pratt, Sec'y. **ELKHART, INDIANA.**

In writing advertisers, please mention GLEANINGS.

Columbia

Hartford and Vedette Bicycles.

Our new 1899 Models contain more improvements than were ever before offered in a single season.

SEE OUR CATALOGUE.

POPE MFG. CO., Hartford, Conn.

$26

REAL BARGAINS

Road Wagons at $16.45
Top Road Wagons at $22.70
Top Buggies at $26.00

Surries $43.50; Phaetons $37; Spring Wagons $29; Single Harness $3.75; Farm Harness $12. Also Carts, Saddles and everything in the vehicle line at lowest **wholesale prices.** All correct in style, quality and workmanship. Buy direct from factory. Save dealer's profits. We sell one or more as low as others sell in car lots, and ship C. O. D. with privilege of examination. Guaranteed as represented or money refunded. Write for catalogue and testimonials *Free.*

CASH BUYERS' UNION, 158 W. Van Buren St. B 345, Chicago

In writing advertisers, mention Gleanings.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

Speedy work means greater profits. All Iron Age implements mean more speed—especially the **Iron Age Combined Seed Drill and Wheel Hoe.** Most complete garden tool ever made.

Iron Age Speed

It will plow, level, furrow, sow, cover, rake, cultivate, hoe and hill. You can plant more, cultivate more, sell more at higher prices if you use the IRON AGE COMBINED SEED DRILL AND WHEEL HOE.

Send your name and address for the handsome Iron Age book of farm and garden implements for '99.

BATEMAN MFG. CO., Box 120, Grenloch, N. J.

In writing advertisers, mention GLEANINGS.

No Money in Advance!

$15.50 HIGH GRADE BICYCLES

Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men Women, Boys and Girls, well made and durable.

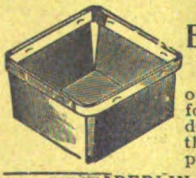
$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made. Others at $10, $13.50, $15.50, $17.50 & $19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345. Chicago, Ills.**

Fruit Packages of All Kinds.

—ALSO—

Bee-keepers' Supplies.



We allow a **Liberal Discount** on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

BERLIN FRUIT-BOX Co., Berlin Heights, - Erie Co., Ohio.

In writing advertisers mention Gleanings.

Digitized by Google

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

VOL. XXVII. MAR. 1, 1899. No. 5.

STRAY STRAWS FROM DR C. C. MILLER

ARTHUR HANSEN, p. 132, is the first man I've seen making end-bars the same as mine, 1½ inches wide. Now, friend Hansen, why didn't you make bottom-bars the same width?

GETTING COMBS in extracting-super built out with cells too deep for queens, as mentioned by Arthur Hansen, p. 132, is an old trick, and I think successful, but it is objected that it gives less comb surface, and ripening is slower.

I AGREE with Doolittle *and* Stenog, p. 123. If *all* would breed and select with the care and good judgment of Doolittle, it would be better than importing. With things as they are, there would be a lowering of average if there should be no more importations.

TO EMPHASIZE a statement of R. C. Aikin, p. 128, I may say that not only will my bees not build down to the bottom-bar, but if foundation comes within $\frac{1}{16}$ or ⅛ inch of the bottom-bar, and often even when it touches the bottom-bar, they'll gnaw it away so as to leave a ¼-inch space.

YOU'VE STRUCK IT. I mean those springs on p. 141. [Yes, so practical and extensive a bee-keeper as M. H. Mendleson, of California, used and tested these springs very thoroughly last season, and I understand he was delighted with them. Mendleson, you know, is one of the most extensive bee-keepers in California.—ED.]

MR. EDITOR, your medical doctrine, p. 122, is all right. When grip began to be troublesome this winter I redoubled my carefulness as to diet, especially as to overeating, and the grip has been able to do no more with me yet than to make me feel like using the lounge more than usual. But I mustn't brag, for there's no telling what may yet happen.

FIFTY COLONIES in an apiary are more profitable than 100, says Doolittle, p. 138, if each colony uses 60 lbs. for its own support and the field furnishes 11,000 lbs. honey. Correct, *if* each colony will store 160 lbs. surplus, and if the field furnishes only 11,000 lbs. But if each colony can store only 100 lbs. surplus, and if the field furnishes 16,000 lbs., then not a colony less than 100 should be kept.

FRIEND AIKIN, you say, p. 128, that a section or brood-frame a half deeper than wide will be finished quicker than if turned the other way. I admit the section, but dispute the brood-frame. It would be so if the comb was started at one point and all built from that center. But the comb is started in three or four parts, each part being a half deeper than wide.

C. DAVENPORT, p. 133, thinks it isn't patriotism to receive honey from Cuba. Friend C., if patriotism makes us care for no country but our own, then there's something higher than patriotism. If the greatest good to the greatest number is advanced by letting in Cuban honey, then let it in, even if it drives us all out of the business. But may be enough will go to Cuba to eat all its honey at the low prices.

BICYCLES with their gear-cases and other improvements get quite a send-off in last GLEANINGS. But that one of Rambler's, p. 136, beats 'em all, for it breathes "to the full the balsamic fragrance." That must be some new arrangement for inflating its own tires. [A gear-case on a bicycle, to use another comparison, is just about as necessary, in my judgment, as a smoker to open a bee-hive. Either can be dispensed with, but not profitably.—ED.]

DYSENTERY, according to reply to F. A. K., p. 137, seems to be a matter of food. But don't bees sometimes have dysentery with wholesome stores? In any case, if my bees had dysentery in cellar, I'd run up the temperature for a few hours to 60 or 80 degrees. I don't know, but I *think* it helps. [Yes, bees do die of dysentery, even with wholesome food. Some of our colonies last fall, fed exclusively on sugar syrup, are showing, as a result of the extremely cold weather we have been having, dysentery to quite a serious extent. I always supposed that disease was caused either by too long confinement, without an opportunity to evacuate the bowels, or by long severe cold causing the bees to gorge themselves more than was for

Digitized by Google

their good, in order to keep up the necessary animal heat.—ED.]

D. W. HEISE gives it in *Canadian Bee Journal* as an incontrovertible fact that "the first and primary cause of bees constructing drone comb is for the reception of honey." I'm inclined to controvert that incontrovertible fact, at least so far as to say it isn't always true. In a super of sections filled with worker foundation, I've known the bees to start drone comb where the foundation was lacking in one of the sections, and that drone comb was left with shallow cells and not a drop of honey in it while the rest of the section and all the sections around it were filled with honey. Now if "the first and primary" object of that drone comb was honey, why didn't the bees put honey in it?

I WAS GETTING READY to report that, by having so many colonies (289) in one cellar I didn't need any fire, when a cold spell came, and for 18 days it varied from zero to 25° below. The thermometer in cellar went down to 41°, 39°, and finally 36°. I couldn't stand it any longer—made a hot fire, running up to 60° the heat on hives nearest the stove. Would you believe it? within two days the weather was so warm I had to keep the cellar door open all night. [This sudden change for the warmer was the only thing that saved the bees wintered on their summer stands. Reports, as you will see, show this sudden change to warm weather will prevent the bees from being as much injured as we at first expected.—ED.]

SIXTY HIVES AN HOUR can be opened when using the entrance-closer mentioned on p. 124. With the one I use they can be opened in less than one-fourth that time. [And you might have added that your entrance-closer costs only about a tenth as much. Our friend Mr. Kreutzinger is a very nice man and a good bee-keeper; but I can not say that I like his entrance closer. It is too much of a good thing. For the benefit of some of our readers who do not know what Dr. Miller's entrance-closer is, I would state that it is simply a strip about ⅝x⅞, and in length equal to the width of the hive entrance. On this is nailed a strip of wire cloth, folded to give it stiffness. Two taps of a hammer will secure these in position; and if they ever get lost, strayed, stolen, or stepped on, the loss is insignificant.—ED.]

"HIVES with Hoffman or self-spacing frames don't require to be handled like eggs," you say, p. 122, so you think they can be taken on a wheelbarrow, Mr. Editor. None of my hives or frames require handling like eggs. They stand hauling on a wagon or a wheelbarrow without any precaution. It's not the frames, it's the bees. When taken in the cellar I want them to be taken in without being waked up. Taking out is not so important; but even then I'd rather see no bee leave the hive until some time on the stand. [H. R. Boardman wheels all his colonies into his winter repositories on a hand-cart; but the wheels are of large diameter, and his yard is level. But even a wheelbarrow on a smooth path ought to be able to deliver the colony to the cellar-opening, with scarcely a perceptible jar; but a wheelbarrow for you—well, that would not do, sure. Your apiary is on a hillside, and the ground from the hives to the cellar is somewhat uneven. I'll let you have your own way.—ED.]

TWO OR THREE have said that, in many cases, with the new arrangements the outside sections in a super were finished first. I'm anxious to believe that's true, but it seems so directly opposed to all rules of comb-building that I may be excused for asking whether there wasn't something wrong with the middle sections. It's easy to explain why central sections should be finished first; can any explanation be given why central sections should be finished first? [It is a fact that we have had a good many reports showing that the Pettit idea secures sections on the outside, as well filled as those on the inside; and this same idea was incorporated in all the plain-section supers except one put out by us last season. I do not remember that any one claimed that the outside surfaces would be *better* filled than the center. But assuming that you are right, the reason may be because the fence on the outside permits of a larger wall of live bees between the super side and face of honey than between two opposite faces of honey in the center of the super. The Pettit idea is based on the fact that good filling is due to plenty of animal heat; and if we put *more* animal heat on the outside faces of the sections, then the natural result would be that they would be filled sooner and perhaps better. If I have not properly set forth the Pettit theory I hope he will correct me.—ED.]

LOOK AT A SECTION and see how the finish is worked out even with the narrow part of the section top, but dubbed off when it comes to the wide part, says R. C. Aikin, p. 127. I've just examined a lot. The dubbing does not begin till after part of the wide part is past, making it appear that it isn't the wide part that makes the dubbing, but rather because it's near the corner. Moreover, at the middle of the side it's built out just as full as at the middle of the top, and the side is dubbed just the same when it gets near the corner, and surely there's no wide and narrow part to the side. The main question is, is there no dubbing in the corner of a plain section? [R. C. Aikin is partly right, and you are partly right. *Under like conditions the plain section will be filled no better than the old-style section.* I put this in italics because I have often been quoted as taking the opposite view. If plain sections are filled better at the corners, it is because the bees have passageways over the tops of the separators from one section to the other, the separator being dropped down ¼ inch from the top of the section. A one-piece section open clear across the top, and part way down the sides, is a far better bee-way section than the ordinary one sold on the market. Mr. C. A. Hatch, a very conservative bee-keeper, who had seen how well Mr. Danzenbaker's open-corner sections were filled, at Omaha, gave it as his candid opinion that these open corners were very important, and did much to secure better filling.—ED.]

Digitized by Google

I HAVE a dear old neighbor
Who lives in Sleepy Lane;
He keeps some bees
Among the trees,
From which he gets no gain—
No one directs their labor.
He had a wise grandfather
Whose bee-lore downward ran
And lodged upon this grandson,
My friend, the Box-hive man.

The almanac he studies,
He knows about the moon—
Its every phase,
Its changing days,
And never plants too soon;
He waits until the flood is
Well past, called equinoctial;
He never yet began
A job on any Friday—
My friend, the Box-hive man.

He looks with veneration
Upon his few "bee-skeps;"
Down on his knees
He tells the bees
About his sad mishaps,
And seeks their consolation.
To sell 'em'd be unlucky—
For this tradition ran
According to the memory
Of this the Box-hive man.

When time arrives for swarming
(But not before July),
The children all,
If not too small
To know the reason why,
Are tasked with the informing
Of "pap" afield, by calling,
Or drumming a milk-can
To charm the bees, and hasten
Their sire, the Box-hive man.

Of course he takes no paper,
And never reads a book—
"They're all nonsense,
And much expense
Which I can't overlook;
Besides, I'm not an aper
Of other men's fool notions;
I follow nature's plan,
And that's the best, I reckon,"
Says he, the Box-hive man.

He gets a *taste* of honey
When every thing goes well,
But not till fall—
His hives are tall,
And made to *hold* the mel
Instead of making money;
But why he doesn't "get there"
Like others of the clan,
Has never once occurred to
My friend, the Box-hive man.

He leads a life of easy
Don't-care-how-this-world goes;
Contentedly
He sips his tea;
And if it rains or snows,
Is sunny, calm or breezy,
He smokes his pipe of comfort,
Disturbed not by a plan
That racks the brains of others—
My friend, the Box-hive man.

Digitized by Google

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

BY "STENOG."

"March forth!" says Queen to all her bees;
"Provide 'gainst hunger—thirst."
"Not so," says Drone; "let's sleep awhile;
To-day is but the first."

BEE-KEEPERS' REVIEW.

J. E. Crane writes in favor of selling section honey by the piece instead of by weight. He says it seems to him a little absurd that the bee-keeper who produces thousands of sections of nice comb honey, all of an exact size, and nearly the same weight, should sell by weight, while the one who buys of him sells by count. He reasons from analogy that sections of honey varying almost nothing at all in weight might as well be sold by the piece as eggs that vary in weight as much as two to one. His points are well taken. If a dozen sections, for instance, are placed on the counter, and marked, "Your choice for 16 cents," each person buying can have what he considers to be the best; and if his neighbor has just bought a better section than he, what loss has he sustained so long as he gets just what he is willing to take, and knows the price?

One of the most experienced bee-keepers in the country in regard to the matter of wintering bees in cellar is Mr. C. Davenport, of Minnesota. Referring to the matter of the best time for setting bees out on their summer stands he takes a position that will go far toward bringing together those who advocate very early removal and very late. He says if the bees have wintered well, he finds it best to let them stay in the cellar till settled warm weather. If, on the other hand, the conditions have been such that early spring finds them very restless and uneasy, and many of them are leaving their hives and dying, the sooner they are set out the better. Mr. D. recognizes a middle ground, however, and says that, one year with another, it makes but little difference whether they are set out in March or April in his locality. He puts each colony on its old stand, as a rule.

Rambler calls in question the supposition that bees dislike black more than white. He wears a suit of blue jean overalls while at work in the apiary, and alternates this suit with a clean one every other day, leaving one suit in the soak while the other is in use. This gives him a clean suit every day. He says bees seldom make an attack upon *clean* clothes of any color. He finsd if a bee-keeper will dres in a complete suit of black, and keep it clean, the bees will not be disposed to attack it. But he notes where there is a fuzzy protuberance on clothes or on a hat, the bees will persistently attack that point. He says a hole in a black hat is just what bees like to pounce on. The more fuzz there is on clothing, the more the bees will attack it; and when two or three bees discharge their poison on the same spot the odor brings many more. He clinches his argument by asking how many bee-keepers have known bees to prefer to sting black pants rather than a white leg while they are crawling up inside of the pants. He adds, "That sting is a conclusive argument."

F. A. Snell, Milledgeville, Ill., drives a nail in the right place in a plea he makes for planting certain trees for honey, and especially the hard maple. This is certainly one of the best trees nature has given us. It grows fast, "yields a liberal amount of honey while in bloom, and blooms late enough so the weather is generally good for the bees to work." Mr. Snell is not so enthusiastic over the soft maple, as, on account of its extreme earliness, it is liable to be frozen so that it will yield neither honey nor pollen. It is a fine tree here, and is literally a "hummer" when the bees first strike it in early spring. It is a fast grower, and is one of the best shade-trees we have. Mr. Snell says the white (or gray) willow yields later than the maple, and furnishes honey and pollen well.

It seems that the question as to the origin of honey-dew, like the dew itself, will not "down." Mr. J. A. Nash, of Iowa, says that, a few years ago, there was a great yield of that stuff in Iowa, and before spring it had killed four-fifths of his bees in the cellar, where he had previously wintered a large apiary several times without any loss. He says he might have still believed it was a secretion of bugs had not an old bee-keeper come into his apiary one morning and said, "Look a-here. You told me this honey-dew was made by bugs. Now, I jist cut a black-hickory tree that was covered with honey-dew, and there were not forty lice on the whole tree, as I could find, and I have two good eyes. Don't you think it was a sorter heavy strain on them lice to make all that? I allow they sot up nights." Mr. Nash says there were tons of that stuff gathered, and the lice could not be found at all.

J. H. Martin is enthusiastic in regard to having pretty apiaries. He says he used to cover his honey-house with paintings of the high-colored Italian bees. He found these bits of bright color were a great relief to the eye and the brain when tired with work. "A bit of bright color in the shape of a rose or geranium has the same effect where they can be grown judiciously." But Mr. Martin adds, in his own graphic way, "It may not pay in dollars and cents—certainly would not where the owner sees more beauty in a pigsty than in a bit of bright color." He says Mr. J. F. McIntyre has the most orderly apiary in Southern California. Owing to the beautiful pictures it makes, it is the best advertised apiary in the country. I am sure there is much to rest one by looking at bright positive colors. I find the tedium of shorthand writing is entirely relieved by using bright carmine ink a while, then some other lively color, such as blue, violet, or green. I supposed it was a notion of mine, but I see I am not alone. That

Digitized by Google

is why we like to change the color of the cover of GLEANINGS once in while. And then see how quickly boys will grab for a green or yellow firecracker rather than one of the regulation red kind. And how a rainbow stirs the soul by its charming colors!

AMERICAN BEE JOURNAL.

The comb-honey yarn is up again. Mr. York prints the following from the *Farmer's Voice*, of Chicago:

> It is almost impossible to buy pure honey. Even honey in the comb is adulterated. A syrup of glucose and dissolved sugar is fed to the bees, and they fill the combs as with honey, but it is inferior.

The clipping was sent to Mr. Eugene Secor, who replies with a complete refutation of the statement, mentioning, among other things, that Mr. Danzenbaker watched the agent of a glucose-factory in his attempts to get bees to take glucose, but it could not be done. Mr. York mentions a similar canard in the *Evening Post*, of New York. I replied to them in full, sending them a sample of foundation. I believe in replying to such statements by writing to the editors of the papers themselves, as they will in every case, probably, publish a fair statement of the facts as we know them. I am not sure that *my* reply appeared in the *Post*, but I am glad semebody's did.

As this is the shortest month in the year, and space is at a premium in GLEANINGS just now, and as the other journals have not come yet, it will be necessary to stop picking just here.

GENERAL CORRESPONDENCE

AN INTERVIEW WITH J. E. CRANE.

Wintering Bees; Wind-breaks; Smokers; Cheap Honey-packages; Plain Sections, etc.

[Some little time ago I told you that "Stenog" had taken down verbatim an interview that occurred between Mr. Crane and myself. At the same time a kodak made an attempt to preserve the visible portions of the interview; but when we came to develop the film we found, to our chagrin and sorrow, that it was "fogged;" and I am, therefore, unable to show you the two of us in animated discussion. Well, here is what flowed from Stenog's pen.—ED.]

Mr. Root.—About how many colonies have you, Mr. Crane?

Mr. Crane.—About 525.

R.—In how many apiaries?

C.—Five.

R.—Don't you find that so many colonies in one yard are too many?

C.—Perhaps they give a little less honey per colony, but that, I believe, is fully made up in convenience in handling.

R.—How many helpers do you have generally?

C.—Only one.

R.—How many hours do you work a day?

C.—Well, we are supposed to work only ten hours; but sometimes the number is lengthened to twelve or even fifteen during the height of the season—it varies greatly.

R.—Do you produce comb or extracted honey?

C.—I produce comb honey altogether. I produce extracted honey from unfinished sections, and that is all.

R.—Why do you produce comb in preference to extracted?

C.—Oh! it is less work to do so; and, besides, I find a more ready market for it—those are my principal reasons—there may be others.

R.—How do you manage swarming at outyards?

C.—Well, I remove the queens from some hives when the bees are preparing to swarm, and from others I remove the brood-combs, and give them empty combs, or frames supplied with foundation instead; cutting out queen-cells where the queen is removed, and giving virgin queens, after two weeks or more, to queenless colonies.

R.—Don't you find that an immense amount of work?

C.—Yes; but I have failed yet to accomplish very much without considerable work.

R.—Don't you sometimes miss some cells?

C.—I think very likely I do—undoubtedly; but I have observed that, where I keep a man in a yard to watch the bees, I also lose swarms; but the loss is no greater, so far as I have observed, by my method, than where I hire a man for each yard, and the profit is rather greater.

R.—Do you shake bees off the combs when hunting for cells?

C.—I do usually where the colony is very populous.

R.—Do you have blacks, hybrids, or Italians?

C.—Oh! I have all kinds, but most largely hybrids.

R.—Why do you have hybrids?

C.—Well, it is too much work to keep pure stock. I should prefer the best strains of pure Italians or else pure blacks.

R.—But wouldn't you have more difficulty in shaking the bees off the combs with pure Italians?

C.—There would be less necessity for shaking the bees off, because they remain more quietly on the combs.

R.—And is it a fact that, by this plan, you and one helper can manage over 500 colonies?

C.—We do so.

R.—About how many hours a day did you put in, each of you?

C.—It didn't average far from ten. Probably, during the height of the season, we put in more than that—doubtless eleven or twelve.

R —Mr. Crane, has your experience with plain sections this season been such as to warrant you in using a larger number next season?

C.—It has.

Digitized by Google

R.—Do you have any trouble from the so-called ridging, with plain sections?

C.—No serious trouble.

R.—Would the average purchaser or consumer notice such ridging as you did have?

C.—I think not.

R.—Did you find that the faces of comb honey in any of your plain sections went beyond the edge of the sections themselves?

C.—I do not remember any except with the very few where the separator was too narrow. They built out above.

About how many tons of honey do you think have been produced the past season with fences or plain sections, Mr. Root?

R.—Oh dear me! you ask too hard a question.

C.— Well, give it as nearly as possible.

R.—I do not know how much was produced all last year. The season was poor; but I should think that anywhere from 10 to 25 per cent of all the comb honey produced last year was put up in plain sections.

C.—I am glad to know it. About how many persons have used them?

R.—Most of our customers who bought our latest goods bought plain sections and fences. There must be several thousand who bought them last season.

C.—How many have gone back on them?

R.—I do not know of any who have classed the plain section and the fence as a failure unless it is friend Thompson, in our issue for Dec. 15th last, or R. F. Holtermann in the *Canadian Bee Journal*. There are some others who found they did not work to their entire satisfaction; but when we began to investigate we found the trouble was due to the faulty construction of the fences. There may be others who have classed plain seetions and fences as a failure; but if so, I am almost inclined to believe it is because they wanted to believe so in the first place.

C.—This is very important information. I was not aware that so large a proportion of the honey was produced in plain sections, or that so many were using them, or that their use was so satisfactory. Another question: Can a 1-lb. package for extracted honey be gotten up for a cent each?

R.—There may be possibilities along this line; but, so far as I know, no package has yet been devised of tin, glass, or wood, that would come anywhere near as low a figure as that. The nearest of any thing that I know of is an ordinary tin fruit-can holding 2 lbs. These can be bought in a wholesale way, I believe, from the manufacturers, for about 2 cts. a can, or at the rate of about a cent a pound for honey. These packages are not self-sealing—that is to say, the cap or cover has to be soldered on after the fruit or honey is placed in the tin.

C.—Could a package of tin be gotten up in the flat for one cent, so the bee-keeper could put them together?

R.—Possibly; but the manufacturers would have to have a very large order before they would attempt to make a smaller package in the flat.

C.—It is the same with extracted as with comb honey. Consumers will sooner buy five 1-lb. packages than one 5-lb. package.

R.—I believe you are right. A little correspondence with manufacturers would show what can be done, at least. Mr. Crane, how do you winter your bees?

C.—Outdoors, packed.

R.—What is your percentage of loss, one year with another, in winter?

C.—It varies with the different yards. Where bees are sheltered from the wind the loss is, perhaps, not more than one or two per cent. One such yard two years ago came through without the loss of a colony previous to swarming time. There were nearly a hundred hives in the yard.

R.—That is a good record.

C.—Last winter, in the same yard I lost four or five; all, I believe, were hives that were without packing, and had little or nothing over the brood-chamber; half or more of the brood-frames open or exposed. Not more than one or two were properly packed.

R.—I understand, then, that this loss was due largely to the fact that the colonies were not properly packed, do I?

C.—Almost wholly that. Practically these and no others were lost. There may have been one or two more.

R.—What sort of windbreak do you have around the yard in question?

C.—An arbor-vitæ hedge, high picket-fence, and buildings to some extent. In fact, they are sheltered so that the wind is largely broken. And there are some pine-trees in the yard, too, that act as windbreaks.

R.—All things considered, wouldn't you prefer a high board fence?

C.—No, I should not.

R.—Why?

C.—Because a tight board fence turns the wind, and the wind is liable to go over the fence and swoop down in the yard with even more violence than where there is no fence nor any thing else around to produce heavy drifts, while a hedge of evergreens or a picket-fence, practically open, breaks the force of the wind. It simply slows it up. It is marvelous how a hedge of evergreens or a picket-fence will slow up the wind, allowing a very moderate amount to pass through and thus break the force of it.

R.—That is a good point. I notice at our home yard the evergreens accomplish such results as you have stated. The trees make a great roaring when the wind blows through them, but within the inclosure every thing is comparatively quiet. Years ago, when we had a tight board fence it had a fashion of blowing down occasionally; and then very often it would bend at an angle of 45 degrees, giving the wind a good chance to swoop up and down, as you say.

C.—I now consider the question of wind one of the most important in the location of an apiary.

R.—Mr. Crane, what size of entrance do you prefer on your hives, all things considered, winter and summer?

C.—The summer entrance to most of my

Digitized by Google

hives is ⅝ inch by the width of the hive in length.

R.—If you could change your entrances to wider, would you do so?

C.—I am not sure. They answer well, excepting a very few days in extremely hot weather, with hives that are exposed to the sun.

R.—And that reminds me. Do you prefer shade of some sort for your hives?

C.—A little, but not too much.

R.—A shade of what sort?

C.—Trees. By the way, in speaking of protection from wind, one thing must be guarded against; and that is, that bees should not be too much protected from the wind. A screen of some sort of evergreens, or a picket-fence that will allow a moderate wind to pass through, is to be preferred to one where the wind is entirely broken off, as, during the early spring, when there is sunshine, the atmosphere will warm up inside of such an inclosure so as to entice the bees out, when they will fly above and outside of the protected location, and be lost. I knew one man who lost nearly all of his bees just from this cause. He had a very tight yard.

R.—Mr. Crane, what size of hive do you use?

C.—The brood-chamber is an eleven-frame Langstroth hive; but I have found myself slowly reducing that until I believe at the present time I have only one hive that has eleven combs in—mostly eight combs.

R.—Do you find the eight-frame size large enough for the breeding capacity of good queens?

C.—I find that, where bees are properly protected, and they secure early forage, they begin swarming as soon as clover begins to bloom—in fact, more frequently before clover opens, while as yet there is no honey in sections and but little in the brood-chamber.

R.—Did you ever try running colonies in two stories?

C.—I have.

R.—What were the results?

C.—I have never used them except for extracting purposes and tiering up sections. I sometimes have as many as three supers, one above the other, on a hive.

R.—Did you ever try working for both comb and extracted in the same colony?

C.—Not at the same time. Sometimes I put on an extra story, and allow the bees to fill it; and then I remove it and put on sections.

R.—I have often done that; in fact, for our locality I believe I can get more actual honey, both comb and extracted, by such procedure; and, at the same time, while not actually preventing entirely, to a great extent it discourages swarming. I avoid the hunting-up of queens to cage or remove them, and the subsequent hunting for queen-cells. I wish you would try a few colonies in one of your yards, and see how it works.

C.—Swarming is the most difficult thing we have to contend with. Mr. Root, how soon do you think you can get a strain of bees that will not be inclined to swarm any more than Leghorn hens are to sit?

R.—In the millennium of apiculture. I do believe, however, that something may be done in that line by careful selection in breeding. But somehow bees do not yield so readily to man's whims as poultry and other live stock.

C.—I doubt that statement.

R.—I hope you are right.

C.—The fact that one of the strongest qualities, or one of the qualities most called for (color), has been produced already, would indicate that it is only the demand for a variety that will not swarm, and queen-breeders would presently give us what we ask for.

R.—But don't you think that color yields more readily than any other natural characteristic in insect life?

C.—No, I don't. Like produces like the world over. The law holds good in all vegetable and animal life.

R.—Well, I hope you are right.

C.—Other qualities are produced in other animal life; whatever man desires, by careful selection he has so far been able to secure. If he wants a good cow for butter, he breeds for that purpose. Within the present generation the capacity of the dairy cow has been increased nearly or quite three times above what it was fifty years ago. The same has been true of the production of cattle for beef, and the same is true in the production of sheep for wool. The Spanish merino, introduced into this country perhaps fifty years ago, now produces three times the wool from the same amount of carcass. Of course I refer to best bred animals.

R.—Mr. Crane, whenever I am worsted in argument I always like to change the subject. What do you know about the Crane smoker?

C.—I know that I used one that you sent me three years ago, for three seasons, on 400 colonies of bees, or nearly that, and it was nearly or quite as good at the end of that time as at the beginning. I know no more than that, except that the jacket was broken away from the rivets, and some of the nuts on the bolts lost, but I used it just the same.

R.—Do you have any trouble with the valves sticking?

C.—Very rarely, except in damp days in midsummer, when it is run constantly from morning till night, and the most sticky fuel possible used—cloths coated with propolis. Probably it has not bothered half a dozen days in three years' usage. I think that, to produce the best results, however, they should be occasionally taken apart and cleaned.

R.—I find there has been a little complaint of their clogging; but a little intelligent care will keep them working free and easy.

C.—I have sometimes wished the bellows was a little larger.

R.—But, Mr. Crane, the peculiar feature of the Crane smoker is its strength of blast.

C.—By the way, I had one last season that held fire all night, and we found it in good running order in the morning, ready for work. This was probably the result of using such carbonaceous fuel as cloths coated with propolis.

R.—You spoke a moment ago about propolized cloths. Don't they daub your smoker

Digitized by Google

all up with creosote? and why do you prefer them to other fuel, or why do you use them at all?

C.—My helper prefers them to any thing else, because, when once well filled with them, the smoker will go longer than with any other kind of fuel. We prefer them because the fumes of the burning propolis seem to subdue bees better than any other substance with which I am acquainted. I take it to be the volatile oil produced by the heating and burning of the propolis, as may readily be perceived by placing a quantity of propolis in water and setting it on the stove. Perhaps the delicate aroma of the burning propolis has something to do with the subduing of bees.

THE MORTON SWARMING-POLE.

How to Take Swarms out of Trees, Without Climbing; Full Directions for Making the Machine.

BY E. R. ROOT.

It was a dismal dreary day, when I last stopped at the home of the late Miles Morton; and the rain was pattering down in that quiet way that meant it had come for all day. We could not drive around to see bee-keepers as we had planned, so we busied ourselves in the shop, looking at the various ingenious contrivances of Mr. Morton's.

"See here," said Niver; "here is something you ought to list in your catalog—one of the handiest things we ever had. The neighbors

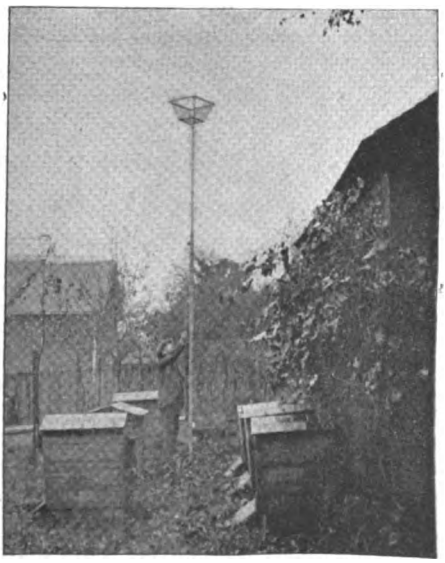


FIG. 1.—THE MORTON EXTENSION SWARMING-POLE.

borrowed it; in fact, it was in demand nearly all the time. The one for the home apiary was so handy that we had to have extra ones for the out-yard."

So saying he hauled out a long double-jointed affair with a wire-cloth basket on the end. It was so long that he had to take it clear outdoors in the rain.

"Now," said he, "you stay inside and keep dry, and I will illustrate the *modus operandi*."

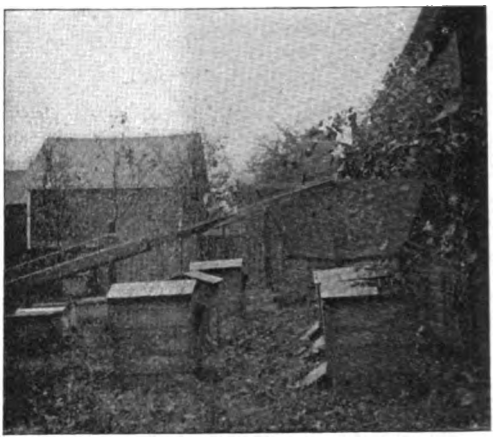


FIG. 2.—SWARMING-BASKET TO THE MORTON SWARMING-POLE.

"Hold on! wait a minute," I said; "let me fix up my kodak."

"Oh! but you can not photograph me in the rain."

"Yes, I can. There, you hold still while I take a 'time exposure.' One, two, three, four, five, six, seven, eight, nine, ten—there, I have you. Now, then, go ahead and operate."

He stood the pole up in front of him on the ground. This brought the basket some 12 feet above terra firma. He then pulled on a little rope until the thing extended up into the air some 12 feet more.

"There," said he, "how is that for high?"

"Wait a minute till I catch you again;" and as the rain pattered down in what seemed like a never ending patter I counted off another "time exposure."

"How high is that basket now?" I yelled out.

"About 23 or 24 feet. But see here," said he; "I can run it up to 30;" and with this he lifted the pole up so that the bottom was above his head. "It is not often that a swarm clusters higher than 30 feet," said he. "They seem more inclined to select the lower limbs."

"But suppose the swarm does cluster higher."

"Oh! then I suppose we should have to shin up the tree. But I should not have to climb nearly as far with it. I would lean the pole up against the tree, so when I had climbed high enough I could pull the pole up after me; then when I had got hold of the bottom I would pull out the extension, run the basket under the bees, bump them in, pull in the extension, then hand pole, bees and all, to an attendant."

"But suppose you do not have an attendant," I said.

Digitized by Google

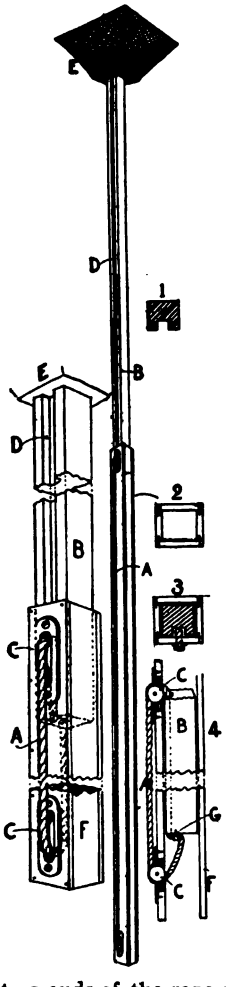
"In that case," he replied, "I would lean the pole against the tree, shin down, and then move the bees."

The thing certainly did work very nicely, even out in the rain. There was not any swarm, of course, upon a high limb to try it on; but I could see one in my mind's eye that little chap of a Niver, 5 feet 4, taking a swarm down and dumping it into one of Morton's big hives.

After Niver had gone through the performance to my satisfaction I asked him to "kindly stand out in the rain a little longer" while I photographed the top part of the apparatus showing a view of the basket; and the result is shown in Fig. 2.

"That thing is certainly very ingenious," I said.

"Yes," said Niver. With this he came inside and began to dissect the same. I made some rough sketches, brought them home to our artist, who elaborated them into a drawing as shown in cut just below.



The machine consists of an outer hollow pole and an inner one, both square. The outer pole is virtually a long box about 2 in. square on the outside, and 12 feet long. A cross-section is shown at 2 in the cut. Inside of this hollow square pole another square pole of about the same length, and just large enough to slide up and down easily, is made. A longitudinal groove, about ⅜ inch wide and deep, running its entire length, is cut on one side, as shown at D, D. This groove is to receive the rope C, C. At each end of the outer pole are let in two ordinary sash-pulleys, as at F, and an ordinary clothesline is then passed through the pulleys. The grooved inner pole is then slid into the outer one, so that the rope lies in the groove. The two ends of the rope are then fastened *at one end*, and "this is where the fun comes in," says Niver; "for it is quite a trick to get the two ends of the rope fastened, and yet have the rope taut after the job is done." The thing to be accomplished is this: The two ends of the rope are made to abut together in the groove four or five inches from the bottom end. They are then stapled down securely. The rope may be fastened as at G, in the drawing; but Mr. Morton had the two ends of the rope abutting together in the groove.

Now, be sure and not make the mistake of fastening the rope at *each end* of the grooved pole, for that will never do, because that will render it impossible to draw the inner pole out of the larger one, as you will see by a moment's reflection; and if you will reflect a little more you will see that it is not an easy matter to fasten the ropes at one end so they will be taut. Although there are two or three ways, Morton's method was to cut off the strip that holds the lower sash-pulley, at a point about five or six inches from the end. This piece, with the pulley, can be pulled out of position temporarily. It is now possible to bring the two ends of the rope together, because we now have a little slack. After they are fastened end to end, the piece with the pulley is sprung back into place and fastened with screws.* If every thing has been done right this will take up the slack of the rope, and make it taut.

If there should be enough demand for a contrivance of this kind we would have it listed in our catalog, and I am sure there would be a good demand if bee-keepers only knew its value; but for the present I have given full particulars how to make it, so that those of a mechanical turn of mind can, in these long winter days, have one or more of these poles in readiness for next season.

IS SWARMING CONTAGIOUS?

Eighteen Swarms all in One Bunch; A Remarkable Experience.

BY F. E. BROWN.

Will bees swarming attract those that are in their hives, or, in other words, will the swarm while in the air cause others to leave their hives? I am inclined to think that they do, under some circumstances. I will try to describe an experience that I had in that line on one occasion. It was when I was located in the Coast Range, and the apiary was situated in a canyon where the mountains came all around except one side, forming a little horseshoe cove. The mountain was steep and high, so the bees had to fly around over the apiary when swarming.

On this occasion I had 200 swarms, and they were all in a bunch with a few trees scattered through the apiary. It was the 5th day of April when an assistant and myself came to the bees. I was surprised to hear a swarm out. They settled on a small cedar-tree some 10 ft. high, and quite slender. While we were preparing a hive for them there was a shout of another swarm. Soon it settled on top of the other. We then shook them off into two separate hives; but there was another swarm coming from another hive; and before they settled, the other two came out from the

* Use screws so that the piece may be removed for the future, to take up slack when necessary.

Digitized by Google

hives they were placed in, and joined the swarm then in the air. Times began to get interesting. Soon two more came out from the apiary and joined the other three. This makes five that were in the air at one time, and it was at this point that the fun began; and of all the sweet music that was ever heard from bees emanated there. The morning air was still and clear; and the roar of the bees was all that could be desired in that line.

But, what could we do with the bees? Soon they began to settle on the top of the little cedar-tree, and soon the tree began bending to the ground, when I ordered some hives to be brought and placed around the tree. Then we began shaking off and carrying away; but other swarms kept coming forth, and the ones that we hived would stay only a few minutes and then come out and again join the great army of bees that were still clinging to the tree and flying about it in such a way that it was hard to get to the tree, as the very air was full of bees—bees everywhere; and such a roar of bees! To make a long story short, we would shake off the bees into boxes and carry them off; and as fast they would come out and go back to the swarm on the tree, while all the time there were other new swarms coming forth, and we kept this up until noon, when, being tired, and not meeting with success, we went to dinner some one-fourth mile down the canyon. While we got out of sight of the bees, there was the music still.

On returning, the tree was a perfect arch, the top resting on the ground, completely covered with bees, and, for about two feet through, a solid mass of them, and still they came out, and the air was as full as I ever saw. We began once more to shake off and carry away, just as you do in the East when thrashing oats, measuring out and carrying away. We kept account of the swarms that came out, as far as we could, and we knew of 30 that came out during the day. But, to go back a little.

About the middle of the afternoon we gave it up as a bad job, and sat down to see what would be the outcome. While thus seated I asked the man who was helping me what course he would have taken had this occurred when I was away. The answer was that he would have rolled his blankets and started across the mountains, seeking other occupation. At about 4 o'clock they all took wing, and, as I supposed, they were going to take across the hills instead of my man; but, not so; they had decided to try another tree for a while; but when that multiplied multitude of bees came from that tree and rounded up over the apiary it was a sight to hear and see; and, to our surprise, the bees that were in their hives apparently quiet came out, and left brood and honey.

I suppose some are anxious to know how we managed the bees. I was quite anxious at that particular time; but as the sun went down behind the western mountains, about four o'clock, and the evening shades brought the usual coolness with it, the bees began to go back to their old homes again, and we had better success in keeping the swarms in the hives; and when the day's work was fully over and all quiet, there were just 18 new swarms.

The next day the same thing occurred again, and the 18 swarms of the day before were just as frantic as they had been the day before; and all that spring, when we had heavy swarm days, the bees from new swarms would desert, leaving brood and honey. On some occasions the hives would be nearly full of freshly gathered honey and plenty of brood.

Hanford, Cal.

[Well, friend Brown, it looks as if you had broken all the records—or, rather, your bees have. Eighteen swarms in one bunch, and eighteen swarms in the air at one time! Did any one ever hear of the like of it before? I would have given something to hear that mighty roar made by something like a million or more of wings.

There is any amount of evidence to show that one or more swarms in the air at one time will induce others to go forth; but as a general rule the average bee-keeper is not troubled by more than two or three swarms in a bunch. Under those circumstances he usually divides them by the dipperfuls into two, three, or four. These are then put into as many hives, and compelled to go to housekeeping, even if each family, as it were, is made up of members of two, three, or more other families.—ED.]

J. P. ISRAEL.

BY J. M. HAMBAUGH.

Died at his home in San Diego, Cal., at 11.30 P. M., Dec. 31, 1898, Mr. Joseph P. Israel, in the 76th year of his age.

J. P. Israel (alias Skylark) was born in Pittsburg, Pa., in November, 1822, and was married to Miss Elizabeth Falkner, of that city. As a result of their marriage, four children were born to them, two of whom are still living—Mrs. Cordelia Lane, of Pittsburg, Pa., and Mrs. B. R. Robinson, who has been living with her father since the death of her husband many years ago. Mr. Israel came to California in 1849, but did not become a permanent resident of that State until 1882, when he moved to Escondido. It was here that the writer became acquainted with him, and our acquaintance ripened into true and lasting friendship. Little did we realize, when we wrote a biographical sketch of him, which was published in GLEANINGS for July 15, 1898, that we should so soon be called upon to pay the last tribute of respect to his memory. Mr. Israel's work as a writer is well known and remembered; and his quaint humor and at times sarcastic tilts that were so characteristic of his writings will long be remembered by those who saw fit to cross pen-points with Skylark. Mr. Israel was a highly cultured and polished gentleman, and, above all, a patient, forbearing, true Christian. His daughter has said, never did she know him to be angry. "He was a Christian in every act, word, and deed." He was well versed in Scripture, and a Baptist by faith. A letter from Mrs. Robinson states that her father was in his usual good health

Digitized by Google

and cheery mood up to the time of his departure to bed, which was nearly ten o'clock on the night of New Year's eve, she retiring to her bed in a room adjoining. She had retired but a short time when she heard the voice of her father calling. Springing to his bedside she found him suffering from what he termed a cramp in his chest. She did all in her power to relieve the pain by local applications, but his condition became alarming, and, against his desire, she sent for two physicians.

"No, my dear, do not send for the doctor. I shall be all right in half an hour." These were his last words, for but a few minutes elapsed when a return of the awful pains seemed to paralyze him. Almost without a struggle his spirit calmly departed, and with the dying of the old year the spirit of J. P. Israel took its flight to don the robe of immortality; and as the morning star heralds the approach

JOSEPH P. ISRAEL.

of the coming dawn, death's messenger to him was the dawn of the morning that knows no night, measured only by eternity. Blessed assurance! The great heart was stilled, but his spirit for ever at rest. The only persons present were his beloved daughter and nephew; and while our heart goes out in sorrow for her who has so patiently and lovingly administered to the needs and wants of her aged parent for years, we can only say, "God's holy will be done; he giveth, and he taketh away. Let us bow in humble submission to his divine decrees." Let us trust that there will be a reuniting of loving hearts across the river, where sorrow, suffering, and separations are no more.

Mr. Israel was interred in Mount Hope Cemetery, and a large concourse of citizens paid their last tribute of respect by following the remains to their last resting-place.

Escondido, Cal.

February 10th finds Southern California with only about three inches of rain for the season in the vicinity of Los Angeles, or only about eight inches for two years, or about as much as falls in one good long soaking rain in the East.

Our two inches in January gave vegetation a start, and sage is making a fair new growth. Mr. Shattuck, an old-time bee-keeper, told me that, if we had rains the latter portion of February or in March we should have a honey-yield. While there is life and the blue skies above us there is hope for the bee-keeper.

A carload of bees was recently moved from this county to the alfalfa-fields of Arizona.

Mr. Frank J. Farr, of Pasadena, in this county, who had good success in moving bees to Utah last year, is getting together another carload for the same destination this year.

There will be an exodus of many bee-keepers if the dry weather continues, and there will be an exodus of several thousand colonies of bees to the sweet by and by, as the bee-keeper will make an exodus into some other business.

Mr. Farr says that the bee-paper which publishes the names and addresses of correspondents has his unqualified approval, as the name and address of parties in Utah, who had a communication in GLEANINGS, led to correspondence and finally to a removal of bees from California to Utah. Mr. Farr says that name and address were as good as a thousand dollars to him. Bee-journals that give only the name of the writer of a communication, and only the county in which he lives, take warning.

Judge Noah Levering is preparing to migrate again to his northern apiary in Siskiyou Co. That portion of California has received a good rainfall, and ought to yield a good amount of nectar. As to whether the Rambler will or will not migrate with him is still an open question.

Mr. and Mrs. Frank McNay, of Portage Wis., after spending the winter in this city of the angels have returned to the East. Mrs. McNay was just as good an angel as though to the manor born. The best wishes of quite a number of bee-keepers will follow them to their home. They are good people to have around.

Mr. George W. Brodbeck has purchased a goodly portion of land near Calabasas, and is at present improving it and putting it into shape to receive his apiary. Mr. B. winters his bees in the suburbs of this city, and moves his bees to Calabasas only as the season warrants.

Mr. B. thinks it will be for his health to live out in the hills where the odor of the sage brush, the song of the mockingbird, and the savory quail and rabbit are all at hand. When he gets established he proposes to keep open house to all of his bee-keeping friends.

Digitized by Google

Mr. J. M. Crow, a bee-keeper who moved to this city from Encinitas, San Diego Co., has built his nest in the rough and rugged canyon of the Little Tahunga, located his apiary there, and also has a good prospect for developing a gold-mine. All good bee-keepers are welcomed to the Crow's nest.

REPORT OF INSPECTOR OF APIARIES.

An Interesting Report.

BY WM. M'EVOY.

During 1898 I visited bee-yards in the counties of Essex, Middlesex, Huron, Grey, Wellington, Simcoe, Cardwell, Norfolk, Wentworth, Lincoln, Peel, York, Ontario, and Victoria. I examined 100 apiaries, and found foul brood in 32 of them. Nearly every bee-keeper who had foul brood in his apiary wrote me private letters about it, and, working on the rule of doing to others as I should like to be done by, I treated all such letters as if they were marked strictly private, and always will. By working along this line in a quiet way, and helping the owners of the diseased apiaries to cure their colonies, I have been able to find out more about who had foul brood in their bee-yards than could or will ever be found out in any other way. I am very much pleased with the way the owners took hold and cured their apiaries, and particularly so with two that were cured by two ladies in the county of Simcoe. These two ladies did the best work in the shortest time that I ever had done, and with two of the worst foul-broody apiaries that I ever handled. Scarcely one week ever passes now without my receiving more or less letters asking questions about foul brood and dead brood of other kinds. I have also received very many samples of comb with dead brood in, and about seven out of every ten of these were genuine foul brood. The most of the letters and samples of comb with decayed brood in, came from many parts of the United States, and the others from bee-keepers in the Provinces of Ontario, Quebec, and Nova Scotia

About how long would foul brood be in a colony before it would become very bad with the disease? was one of the questions asked by several of the writers. I answered, saying, sometimes not more than one week; in others, over one year; but in most cases, less than three months. Just how soon or how long it would be before any diseased colony would become very bad with foul brood would depend entirely on how much or how little of the honey was diseased. The honey, to become diseased, must be stored first in cells where foul-brood matter had dried down; and when any honey is removed from such diseased cells to cells partly filled with sound honey it will infect the latter also. Foul brood is spread through a colony just in proportion to the amount of diseased honey that is fed to the larvæ. I sent Mr. Gemmill out a part of the time and he inspected 15 apiaries, and found foul brood in three of them. I am very much pleased to say that neither Mr. Gemmill nor I had to burn one diseased colony. We found all parties willing to cure, and gave them a chance to do so. I believe that the Province of Ontario has fewer diseased apiaries for the number kept than any other country in the world, judging by the number of letters that I have received. For the very nice way that Mr. Gemmill and I have been treated by all parties while on our rounds through the Province we return to them our most heartfelt thanks.

Woodburn, Ont., Can., Jan. 10.

[Foul brood must, some ten or fifteen years ago, have made fearful headway in Ontario. If I mistake not, a once leading bee-keeper is partly responsible for this state of affairs. In selling bees, it is said, he was not careful in the stock he sent out. In fact, I have been told that he said foul brood was so easily cured it did not make any difference, as every one could cure the disease in his own apiary. Whether this is so or not, I can not say; but if true, his carelessness has cost the bee-keepers of Ontario an immense sum of money. Very fortunately, foul-brood legislation was secured, and a careful and thorough inspector, Wm. McEvoy, was secured to put into practical effect the foul-brood law. I am glad to know, too, that an assistant, as careful and conscientious, has been secured in the person of F. A. Gemmill. Two better men could hardly have been found throughout Ontario, and it is safe to assume that, through their untiring efforts, the disease foul brood will in time be an almost unknown quantity.—ED.]

TRAVEL-STAIN.

Propolis on the Cappings Due to the Travel of the Bees.

BY A. E. MANUM.

Mr. Editor:—In Jan. 15th GLEANINGS I find a very interesting article from the facile pen of my good friend and benefactor Mr. J. E. Crane. I read the article with much interest; but as the conclusion he arrives at is at variance with my observations and my understanding of the nature of the honey-bee, I beg to disagree with my friend on some of the *fine* points he makes regarding the cause of travel-stain.

Although Mr. Crane lives only 12 miles from me, where I could easily reach him in person, I will, instead, and with your permission, Mr. Editor, use GLEANINGS as a "cushion" in the attempt to make a "carom shot" at my friend; and if I succeed in making a hit I hope it will have the desired effect in drawing him out still further on the subject of travel-stain.

Knowing as I do that Mr. Crane is a veritable encyclopedia in bee science, I feel sure that, if he is hit hard enough to stir up his ire, he will open his book of knowledge from which all may read and receive further light.

Mr. Crane asserts that the discoloration often seen on cappings is not travel-stain caused by dirty feet, as generally supposed.

Digitized by Google

He says, "I consider the whole idea of travel-stain as a foul slander, . . . and as infamous." He goes on to prove that the cause of discoloration is due to some foreign substance which the bees gather and incorporate with—or weld to—the wax as a means of economy, and mentions several substances which may be used by the bees to adulterate their wax. Mr. Crane makes one good point in his argument; and this is in the matter of the blue cloth to which he refers, and which would appear quite conclusive if left where he drops it. He also accuses the bees of making use of large quantities of propolis as an adulterant. He says: "It is used late in the season when *wax is scarce* . . . and in such quantities as to be easily seen by the naked eye."

Now, my observations lead me to believe that bees produce wax in accordance with their requirements, although it would seem that they dislike to draw upon their already accumulated store for the purpose of producing wax late in the season, and hence leave some of their work undone.

My friend Crane asserts that the bees go about the interior of the hive in search of particles of comb, cappings, dirt, propolis, or what not, to weld on to and stretch out their scant supply of wax. This is contrary to my observations, and I am, therefore, not yet prepared to accept that theory; and I believe he accuses the bees wrongfully. That the surface of comb honey is sometimes soiled, I admit; but what is the cause of this discoloration? Must we accept the theory that bees purposely make use of foreign substances for the purpose of economy? *I can not.*

Mr. Crane makes mention of the under side of the cappings being stained as well as the outside. I would account for this by the fact that, while the bees are "slowly" doing their cappings late in the season, as he says, their feet being more or less soiled, from various causes which I will explain further on, they stain the inside of the cappings as well as the outside while manipulating the wax. To my mind this would account for the "blue stain" that Mr. Crane noticed on some of his cappings.

You are well aware, Mr. Editor, that wax is very susceptible to any stain—so much so that it is difficult to cleanse when once it is stained. My theory is that the blue cloth referred to, being picked at while capping was being done, more or less of the particles of the bluing adhered to the hair-covered legs and feet of the bees; and the wax being soft, and in a retentive condition, more or less of the coloring adhered to the flakes of wax while being manipulated and formed into cappings. Again, it is well known that wax is a natural product of the bee, and, we suppose, produced at will. It is secreted from the under side of the abdomen, and from this locality the small white flakes are removed to the mouth by the forward feet of the bees; and if, perchance, their feet are soiled by any foreign substance, such as bluing, pollen, propolis, or dirt, it seems quite possible that some of this dirt may adhere to the particles of wax during the transference and manipulation, and thereby cause discoloration, both on the under side and top of cappings. Here is where I think Mr. Crane misjudges the bees. The coloring-matter he finds in the cappings I believe to be accidental, and not intentional, as he would have us believe. He intimates that bees make use of propolis in capping their honey, as he has seen large quantities of it on the cappings. Now, I am of the opinion that the cause for its being so very observable on some cappings is due to travel-stain, as I have never noticed it except after there has been an abundance of propolis gathered; and as they use their fore feet to form the pellets on their hind legs, as well as to remove it from the hind legs after reaching the hive, it is very likely that more or less of this sticky substance *must* adhere to their feet; and as bees usually fly home, the feet are not relieved of it before reaching the hive; so that, in walking over the combs, they are relieved of the sticky substance by its adhering to the waxy cappings. It is also the same thing over in pollen-gathering and pollen-stains, commonly called travel-stains.

Mr. Crane gives the bees great credit for neatness, and justly so; but let us see, Mr. Editor. Did you ever work among your bees 30 minutes, handling brood-combs, without soiling your fingers? *I* never did. Then, if the combs will soil the operator's fingers, why not also the feet of the bees? and they in turn soil our nice white section honey if left on the hive a little too long. Furthermore, what is it that stains our new white separators, edges of sections, and new frames, if not travel-stain?

My opinion is that not *all* discoloration is due to dirty feet, but partially due to their pollenized bodies, as we often see bees pretty well besmeared with pollen, which adheres to them while visiting large flowers, such as pumpkins and squash blossoms; and while passing each other between combs it is not unlikely that occasionally their bodies rub against the cappings, when the pollen will adhere to the same, and thereby cause more or less pollen-stain.

Bristol, Vt.

WHAT COLORS THE WAX OF HONEY-COMBS?

An Interesting Exposition of the Subject.

BY THADDEUS SMITH.

My attention was directed to this question several weeks ago by reading something on the subject by Mr. D. L. Adair, in the old *American Bee Journal*, Vol. III., page 208; and again the matter has been brought to mind by Mr. Crane's recent very interesting article on so-called travel-stained combs, in GLEANINGS for Jan. 15. But as the question above has not been fully or satisfactorily answered by Mr. Adair or Mr. Crane, nor by any one else, so far as I know, I propound it to our successful and scientific bee-keepers for an answer. Mr. Crane does not discuss the question in its broadest sense, nor make an at-

Digitized by Google

tempt to answer it. He only shows how the cappings of some comb honey becomes colored and is erronously called travel-stained. If I understand him he thinks that it is all caused by the incorporation of some foreign substance with the natural wax of the bees in the cappings of the honey-cells. It may be of colored wax taken from old combs, colored cappings from hatching brood-combs, propolis, or other foreign substances. This he has no doubt shown, sometimes, is the cause of colored honey-combs. Mr. Crane's position and arguments would lead us to the conclusion that honey once capped over does not change its color, or become travel-stained, by being left on the hive. His main argument for this conclusion is based upon the fact that he found the cappings, taken from stained honey, to show as much (or nearly as much) color on the under side next to the honey as on the outside. He argues that this supposed-to-be outside coloring-matter could not possibly penetrate through to the wax so as to show on the inside; therefore it must have been incorporated with the wax when the cappings were put on.

This argument, or, rather, the superficial observations that led to it, are faulty. Wax in thin layers is translucent. If colored on one side the color will show *through* on the other side. To verify this I had my eight-year-old grand-daughter get out her paint-box and color some cappings, on one side only, in various shades, from light cream to brown, and even blue. I placed the pieces on a sheet of paper to dry, and when examined I found the color to *appear* nearly as dark on the under side as on top. I think that most bee-keepers will not be ready to agree that all the coloring-matter on honey is incorporated in the cappings.

But my original intention was not to discuss Mr. Crane's position. I had determined to call attention to the coloring of combs before I had seen his article. I want to get down to the root of the matter: What causes the comb, that is so beautifully white when first made, to soon change its color to yellow, then brown, and finally nearly black? I may be answered, flippantly, that it is because it is old—old comb turns yellow. Because brood is raised in it, raising young bees in it makes it dark; they foul it, you know, and the shell of the larva remains in the cell, and that colors the comb. The combs are colored by the bee-bread and the pollen and the propolis that the order-loving insect has left scattered around loosely. These substances are very highly colored, don't you know? Yes, they become "travel-stained." The accumulation of dust (from the flowers) and dirt upon their feet and their bodies during their long hot journeys in search of nectar is all brought home, and goes to stain the combs.

But these answers do not satisfy my inquiry. A piece of virgin comb taken away from the influence of the bees, and kept from dirt, will never turn yellow by age. Combs that have never been used for breeding, and that have never contained pollen, when left in a hive under the influence of a large colony *do* turn yellow. The other answers need no comment.

I have alluded to an article written by Mr. D. L. Adair, on "The Economy of the Beehive," published in the old *American Bee Journal*, as heretofore noted, in which he says something about the coloring of combs. Mr. Adair was writing to sustain his theory that bees could live without a continued supply of fresh air, and only incidentally mentioned the coloring of combs; but that mention brought the inquiry to my mind. He spoke of the compensating laws of nature in the animal and vegetable kingdoms. The animals, in breathing the air, throw off the carbonic acid, which is taken up by the leaves of the plants, and this restores the air to its original condition; so in a properly constructed *aquarium*, furnished with water-plants, snails, etc., the fish breathe the air and produce carbonic acid, which the plants make use of and restore the air. The snails eat the foul matter, and are themselves eaten by the fish. This is a short synopsis of a part of his argument. I want to make a quotation. He says: "God did this, not man. When he created the fishes he made an aquarium for them. Was he less mindful of the 'little busy bee' when he gave it a habitation in holes in trees, where, from the very nature of things, they would be frequently deprived of fresh air for months at a time? . . . . . Experience says not. The bees produce, by breathing, carbonic acid, which, if there were nothing to take from it the carbon, would destroy them. There are no plants to do it; but we find in the hive several things that may answer the purpose. The comb, it is well known, is at first pure white, but first turns yellow and then dark; and as it gets older it becomes perfectly black. Something must produce this effect. May it not be this very carbon that it absorbs that colors it? It is further known that, the older the comb, the heavier it gets. This is not only true of the comb in the middle of the hive where the breeding is done, but more so at the top where the honey is stored. It may be said that carbonic acid is heavier than air, and therefore settles below. We have shown that it first rises from being heated and thus rarefied."

We may not all agree with Mr. Adair's theory of ventilation, nor with his suggestion that combs are colored by the absorption of carbon; but we must admit that there is, in some way, a close connection between the clustering, living, and breathing of the bees upon the comb, and the coloring of the same. The more densely the hive is populated, the sooner the combs become yellow. If the colony is so large that a part of the cluster extends up into the super, and cling to the lower part of the section honey, and are allowed to remain there until cold weather drives them down, the lower ends of those sections will be colored. In weak colonies, and combs some distance from the cluster, the process goes on more slowly, if at all. The small colony doesn't seem able to get up steam enough to carry on the process of coloring, if I may be allowed to use such an expression about a process I know nothing about. Mr. Crane says, "I had less travel-stain when my bees were allowed

Digitized by Google

to swarm than when I try to keep every swarm strong." The strong colonies stained the honey most. And, again, he illustrates this by another incident, although he gives it for a different purpose. A strong queenless colony was put into a hive filled with foundation in July, and allowed to remain queenless; and after four months the hive was found full of sealed honey almost entirely free from travel-stain. Of course, this queenless colony soon began to become weak.

Does this coloring process, or matter, whatever it is, penetrate the very body of the wax? Melt a piece of virgin comb carefully in clear water, and the result is white wax. Melt a piece of comb that has never had young bees or pollen in it, but has turned yellow in the hive, and we get yellow wax—the color of all commercial wax that has not undergone the process of bleaching. Some chemist might try the effect of carbonic-acid gas upon pure white comb, and test Mr. Adair's theory.

Pelee Island, Ont.

[When Mr. Crane was here he lifted some of the cappings of some of our travel-stained honey and showed the discoloration on the back as well as in front. But Mr. Smith seems to be of the opinion that color or stain, while only on the surface, may show through the wax, owing to its partial transparency. To prove or disprove the point I went at it in this way: I took several sections conspicuous for their travel-stain. Knowing that gasoline is a solvent of wax, I took a piece of waste, saturated it, and rubbed it lightly over the soiled parts of the capping, thinking that, if the stain were simply on the surface, this gentle rubbing with the gasoline waste or rag would remove a very slight film from the face of the cappings, taking with it the stain; but, no matter how much I rubbed, the stain remained as long as the capping; for if I rubbed long enough, the capping would entirely vanish, the gasoline gradually absorbing the wax.

I went over quite a number of sections in this way; but in no instance did I find that the stain disappeared, for it seemed to be *clear through* the capping. Previous to this I tried soap and water; but it had no more effect than if the face of the honey had not been touched at all.

I next took a sharp-pointed blade and lifted several of the cappings of the combs, and in some instances, at least, it seemed as if the stain itself was on the under side rather than on the face. Under a strong magnifying-glass I pulled the cappings into shreds, but the stain seemed to be in every particle.

A travel-stained face of comb honey may have a yellow look or yellow spots, or it may have chunks of red propolis scattered here and there. These latter can be removed with a sharp knife, showing that they are wholly on the surface of the capping. But when the cappings have a *yellow* appearance, the stain seems to go clear through the capping. Now, this yellow, according to my theory, is caused by propolis; for I notice that honey is more apt to be travel-stained toward the close of the honey season, or about the time the bees have more time to bring in propolis. It may be, as friend Manum suggests, that they get their feet, their mandibles, and their bodies so thoroughly stained with the yellow stuff that the wax they work is necessarily stained; and, as a consequence, we have, toward the close of the season, or after it, yellow cappings. And there is still another point to be considered; namely, that these yellow cappings are apt to be near the wood of the section—more particularly at the bottom. Why is this? Is it not because of the proximity of the propolis-daubed wood?

Mr. Smith is correct in saying that new comb just built is always white and flaky, and that after it has been in the hive a while it turns yellow. It may be that carbonic-acid gas in the hive has something to do with it; but I should more think it is due to the stain from propolis. In our foundation work we find that wax very readily takes stain of any kind, especially of dirt.

After writing the foregoing I read the article of friend Cormac, just following. It seems he tried washing-soda or carbonate soda, the action of which on wax would be about the same as that of gasoline. His results were not the same as mine—at all events I am wondering whether he or I drew the wrong conclusions. So I suggest that others try it and report. If Mr. Cormac is right, and if the soda has a different action from gasoline, then we could make No. 2 honey into No. 1. I can scarcely credit it. As this form goes to press before I can get the washing-soda to try, I'll have to let it go for this time.—ED.]

TRAVEL-STAIN ON THE SURFACE OF THE CAPPINGS.

Washing it with Carbonate of Soda.

BY JAMES CORMAC.

In GLEANINGS for Jan. 15 the article of J. E. Crane, "Travel-stain; What is It?" was read with considerable interest, inasmuch as no discussion of the matter has come under my observation heretofore, that I recollect. The writer cites many interesting facts regarding the capping of cells filled with honey, where the bees have incorporated foreign substances with the wax, which has been mentioned heretofore by correspondents, and attributes such to pollen-stains as a large element in producing what is commonly called travel-stain. He remarks, "Every bee-keeper is supposed to know what travel-stain is; but I have sometimes wondered if I do," and refers it to that slight tinge of color we find on or in cappings of surplus combs—slight near the top of sections, and increasing toward the bottom, where it becomes a light cinnamon or yellow or brown. The discoloration is usually attributed to the bees' feet being dirty, which is far from being the cause. As surplus combs are drawn out sometimes from the center, if a full sheet of foundation is used, or near the top thereof if a starter is used, the center or upper cappings being formed before the bottom cells are drawn or filled,

Digitized by Google

if dirty feet were the cause, that part first capped would present stains as much as or more than the bottom cells, which are the last to be completed on full sheets of foundation and the upper corner cells where starters are used the same, the travel over the center being greater than at the bottom (last built), where the stain is almost always darker, it stands to reason if attributed to dirty feet; but not so. Although foreign substances are often incorporated in the wax, that does not color the comb; and if we lift off a capping from the cell, and hold it up to the light the semi-transparency shows the color of the outside, the same as glass shows dirt, which puzzles the housekeeper, often, to tell which side of the window needs wiping. The color is not in the wax, but on the outside, and is placed there by the bees with care and deliberation, and for a purpose.

All combs when built (they are not drawn) are formed from the scales of wax as excreted by the bee, and pinched by their mandibles till they adhere together. The sides of the cells are porous, also the cappings, and will admit moisture from the breath of the bee condensing within the hive when ventilation is impeded by cold air, and, unless excluded from contact with the honey, would be absorbed and cause the sweating and souring, detrimental as food to the bee. To prevent this the bee varnishes all sealed sections at a time when resinous vegetation is secreting propolis, so called. Unless the cells are reserved for uncapping for larval food there will be no propolizing until very late, and will be slight because of scarcity. There is great difference in the amount of this so-called travel-stain as applied to the combs by different colonies, as well as in different localities. In this prairie country in an early day, say thirty years ago, when much was unsettled, wild flowers were abundant, and excretions of gum or resin were plentiful, so the bees made use of it to excess compared with what is now gathered. Honey at that date was ruined for market by the amount of propolis spread over the combs, it being applied in chunks.

To convince yourself that this stain is mostly propolis smeared on by the bees, and not incorporated in the wax, take some soda carbonate, dissolve it in water, apply the solution to the comb with a soft brush. Now try some propolis scrapings; result, a stain like yellow paint, which will rinse or wipe off from the comb and leave the comb very much whiter—a fair No. 1 section, changed from a discarded travel-stained one.

Des Moines, Iowa, Jan. 20.

RAMBLE 162.

Crossing the Boundary into Oregon.

BY RAMBLER.

Yreka is located in a fertile valley, but it is not much of an alfalfa-growing district, consequently there is no one engaged in the business of bee culture here. About the only honey-production that was ever practiced here was by an old miner who hunted and robbed bee-trees, and became so proficient in the business that he was known as Honey Jake. Now and then a nice hunk of honey would sell for 50 cts., while a mashed or broken lot would be greatly depreciated in price; but the miners were not over-particular about the mussed condition, for a real lover of honey would patronize Jake whenever the buckets appeared with any sweetness in them. Honey Jake never tried to domesticate the bees. His ambition went no further than to cut the tree or pry open the rocks, secure the sweets, and leave the bees in a forlorn condition.

At Gazelle, on the S. P. R. R., and almost in the shadow of Shasta, we find the noted Edson ranch, upon which are several thousand acres of alfalfa. The Edsons are not only enterprising along the lines of alfalfa and cattle raising, but have established bee-ranches, and make considerable shipments of honey. They are in the ideal condition so much extolled by the cattle-man, wherein they have command of the northern and southern markets. I judge, however, that, if there is any gain in choice of a market, the railroad will take a good share of said profit, for the freight rates from this point are excessive.

I broke away from Yreka about noon, and, with the aid of my wheel, sought to strike the railroad about 18 miles north in time for the north-bound train; but owing to quite a little up-grade, and the necessity of leading my wheel, I did not make Klamathon, the station, in time.

But I did not care a continental. I found quarters in a nice little temperance hotel presided over by several nice sociable ladies of various ages, and I made myself so agreeable, that, in the evening, I was invited out to the only entertainment the town afforded, and that was to the saw-mill. This mill is the

Digitized by Google

center around which all Klamathon revolves; in fact, it is the life and hope of the town; for everybody works there except the women. The mill was running night and day; and under the brilliant electric lights it was no small sight to witness the rapid manner in which logs were handled and converted into boards.

The immense band-saw would cut its way through a huge log 13 feet in length in just six seconds; in three seconds the log would be run back and set for another cut; then what the ladies called the nigger (a square post with a big spike in one side of it) would bob up through the floor and flop that log over as quickly as you could make three winks.

From the rate they were working that night I reckoned they could saw enough lumber in one day for all the bee-hives bee-keepers will need in California in one year, and a good year at that.

Take it all in all, this entertainment in the mountains, with three ladies to show me around, was much better than a theater, a minstrel show, or even a football game, for which I have a special weakness.

I broke right out again the next morning on my wheel for Ashland, Oregon, 32 miles distant. I had to make this break or wait ten hours for the train, so I broke. I soon came to the mute but eloquent sign that marks the line of division between California and Oregon. I thought it fitting to celebrate the occasion, and carefully dismounted, took off my hat, unfurled the little American flag I had with me, and, with due respect for our sister State, passed into her territory. My respect continued to grow that day until it reached the altitude of about 4300 feet, or, in other words, I passed over the Siskiyou Mountains, and had to walk at least six miles and push my wheel ahead of myself up a steep grade. I had the consolation, though, of believing that it would be down grade on the other side, where I could make up for lost time.

Another feature was highly gratifying. The water, that often appeared in crystal springs or musical rills, was cold, sweet, and invigorating, and I can tell you that Siskiyou Mountain produces the best water I ever drank, and the memory of the refreshing draughts I sipped from every spring and fountain still lingers on my palate.

For at least ten miles that day I passed over the most lonely road I ever traveled — not a house, human being, animal, or scarcely a bird. It was an excellent road for a hold-up; but the fellow who does such things evidently did not expect the Rambler.

I have traveled over and lived in many lonesome places; but I hardly ever think of the robbery contingency, and I am more and more impressed with the fact that we have a very good country in which to live, and where the law makes it unhealthy for the existence of brigands.

I have found quite a number of eastern people who look upon any portion of our country west of the Rocky Mountains as a wild and woolly region; and when they come here they tuck a revolver into their grip; but, my dear friend, if you contemplate coming to California don't waste your money on deadly weapons. You will not need them, and are more liable to shoot yourself than to use them on any other person. People are just as safe on the Pacific coast as they are on the Atlantic side.

I rested awhile on the summit of Siskiyou Mountain, waved my bandana in a sort of imaginative way to the bee-keepers of the south and the east, and then, with a fir-bush trailing behind, went whirling down the road that wound through the tangled wild woods. Acorns were plentiful here, and the only animal I disturbed on the Oregon side was an occasional pig busily crunching and fattening on them. And it was down grade to make you smile—a drop of 2252 feet in 13 miles.

I was quite interested in Ashland, whither I was tending, for it is one of those towns where the late Mr. Levering marketed quite an amount of honey. He employed teams to freight it out from Siskiyou County; but the expense of transportation, the competition of other bee-keepers in Oregon, as well as the low price for which honey could be purchased and delivered from San Francisco, reduced his net profit to a small figure.

There are a few bee-keepers within a few miles of Ashland, and after a fair night's rest I proceeded to hunt up at least one of them. My landlord informed me that Mr. W. C. Myers was a bee-keeper of some local note. "And," said he, "you will probably find him about this time of day at the creamery just up the street." So I hied away to the creamery. On my way I overtook a man who had the appearance of a well-to-do farmer, and I asked him if he knew a man by the name of Myers.

"Why, yes," said he, "I ought to know him, for that is my name;" and Mr. Myers and I proceeded to the creamery together.

Mr. Myers is not extensively engaged in bee-keeping. He makes it a sort of side issue. He is one of the most prosperous farmers near Ashland, with an elegant house and commodious barns. I was especially interested in the beautiful Shetland ponies on his ranch. For several years he has made the breeding of these diminutive horses a specialty, his taste running more in that direction than with bees, and, withal, with more certainty of profit.

Digitized by Google

He has some of the finest Shetland stock to be found on the Pacific coast.

While at the creamery Mr. M. introduced me to another bee-keeper, who was evidently an amateur, for he could boast more in one minute about what his bees could do than Mr. Myers would in a lifetime.

From the few bees kept in the vicinity I should judge that the location is not a tiptop one. Alfalfa is grown here, but it is cut before bees can work upon it. There is white clover in abundance, and sweet clover is getting to be quite plentiful; but it is regarded as an obnoxious weed. If the weather is favorable in the spring, bees ought to do well on fruit bloom, for there is much of it. Ashland is at the upper end of the Rouge River Valley, and all of this region is noted for the excellence of its fruits. Apples and pears from this valley have sold for fancy prices in New York and in London.

Mr. Myers said that, if his bees could work on the poison oak that flourished in the hills a few miles distant, he thought he could get much good honey from it. This oak is a bush growing to a height of six or eight feet; has a profuse bloom, and secretes much nectar; the honey does not partake of the poisonous nature of the tree, but is of fine flavor and color. Mr. Myers had a novel idea of getting his bees to work upon it, but which he had never put into practice. The oak, I understand, is over five miles from his apiary. Instead of moving his apiary into the vicinity he proposed to take a few bees in cages from a number, or all of the colonies, to the hills, and liberate them near the flowers. Finding themselves in the midst of plenty they would fill themselves and convey the good tidings to the apiary, and there would be a general stampede to the new field. Mr. Myers asked me if I thought the plan would work. In my reply I had to infringe upon Dr. Miller's prerogative, and say, "I don't know."

However, in my experience with orange bloom I am inclined to think that, for a honey-producing flora to entice bees a long distance, the field must be large, the odor strong, and the nectar abundant.

Mr. Myers gave me the names of several bee-keepers within a few miles of Ashland, one of whom had about 100 colonies; but the roads needed a high-stepping steed, and mine was not of that kind, so I contented myself with the information given by Mr. Myers, and proceeded down the Rouge River Valley to Medford.

REPORT FOR 1898.

We commenced in the spring with about 275; increased to 325, and produced 3694 lbs. of section honey, 895 lbs. of broken comb, 14,595 lbs. extracted; grand total, 19,194 lbs. This country averaged from ½ to ⅔ crop, owing to whether or not the bees received the proper attention. We have bought 125 more colonies, and will begin 1899 with 450 to 500, besides a large lot of nuclei.

Hutto, Tex., Dec. 7. O. P. HYDE & SON.

ANSWERS TO SEASONABLE QUESTIONS BY DR. C. C. MILLER

WIDE FRAMES AND SEPARATORS.

Question.—Will you please tell in GLEANINGS why tin separators are not as good as wooden ones or the fence? I am using wide frames with tin separators tacked to them, so arranged that a bee-space is left at top and bottom so the bees can work all through the surplus apartment. Is this not as good as any thing I can have? And can not the separators be cleaned of bee-glue much easier than could the fences?

Answer.—The above-described wide frames and separators are just such as I have used for the past 25 years, and so far I see no reason for changing my surplus arrangement. As my honey has always brought as much as, or a cent or two more a pound than, the highest market quotations, I see no reason why I could secure better prices were I to change my mode of securing surplus. Some of my fancy honey, shipped on commission this last fall to a Boston firm, sold at 20 cents per pound, while 14 to 15 cents was the highest market quotation for the best fancy in that city. One of the great advantages of wide frames is that the bees do not have access to the outside of the sections at any point, except the edges of the horizontal pieces; hence, when filled, they are as *new and perfect* as they were when put on the hive, requiring scarcely a bit of scraping to clean them of propolis, or bee-glue, as our questioner calls it. All that has been said of late regarding section-cleaners finds no place with the apiarist who uses properly constructed wide frames. Yea, more: All the expense required in constructing one of these section-cleaners, or in buying one, is entirely saved by using such wide frames. More still: All the time required in using them can be taken for the improvement of the mind in reading, etc.; going to some summer resort, and hearing some of the best talent in the world; or, if nothing else seems of more importance, the time saved can be used to go camping or fishing, if one is so inclined; and with me, either or all of these seem to meet my requirements better than to run a section-cleaner, and be to the expense of purchasing the same. As to the inventing of a section-cleaner, I have not so much to say; for in such invention of any thing the mind is improved, and a certain joy comes, which is often greater than any which can be experienced in going fishing, etc. I would not discourage inventive genius in any way, for, when used aright, it is not only a help to the world through the invention, but a help to the world also by making the inventor a greater man or woman, socially and intellectually.

As to the ease of cleaning separators, I am not much interested; for, to my knowledge, I have cleaned mine only *once*, and many of them have been in use for from 20 to 25 years. Some years ago I used wooden separators on a

Digitized by Google

few hives by way of experiment, and, if my memory serves me aright, they were daubed up with propolis to a much greater extent than were the tin ones. But they were not discarded on this account, but because they did not answer their purpose as well, when used in connection with wide frames, as did the tin.

WHEN TO PUT FOUNDATION IN SECTIONS AND FRAMES.

Question.—Would you please let me know through GLEANINGS if it will be just as well to fasten the foundation in the frames and sections during the winter months, while I have plenty of time, as to do the same just before needed, when I am crowded with the summer's work? If I could do so I could have them all ready when the time comes for their use, at a much less cost to me. But I am told that the bees will not accept the foundation as readily where it is put in the frames and sections in winter, as it becomes dry and hard by summer, so the bees can not work on it to advantage. Is this a fact, or only some one's "think so"?

Answer.—During two years I experimented largely in this matter, till I became convinced that all the talk about old foundation being hard and dry, and not worked as readily by the bees, was a fallacy. To be sure, on these cold winter days all foundation does look hard and dry, and any thing but inviting to the bees, or to myself either; but you just wait till some hot day in June or July, and then go up to the attic where it is stored away, or where your frames are filled with it, or sections, may be, then look at it; and if it is not too soft and pliable to handle easily, then your attic and your experience will be different from mine. Why I have alluded to an attic is this: Cold foundation has a whitish, hard appearance, while foundation in a heat of 100 degrees F. has a yellow, oily appearance when it is pliable to handle and inviting to the bees. Now take a piece of the foundation, fresh from the mill, and take it into the cold room, and you will at once say this new is more acceptable to the bees than the old piece you are comparing it with; but take the same new piece into the attic, and hold it by the side of the old, and you will conclude at once that both are alike inviting to the bees. Now take your old, on some cool day in June, when it looks so uninviting, and lower a frame filled with it down into the center of the brood-nest. Leave it five minutes, then go with a piece of that fresh from the mill in your hand; lift the frame, when, presto! the old and the new have become alike again, and the bees have already begun to manipulate it. In other words, when placed in the hive the foundation assumes the same yellow, oily, soft, pliable nature, after a moment or two, that it has in the attic, or when first leaving the mill; and if this is a fact, which I know it to be, will any one tell me why it is not just as acceptable to the bees as the new? Under these conditions no one can tell the new from the old, when the different pieces have been shuffled together, unless either has been marked in some way.

This matter of old foundation not being as good as new is like many another matter which has been started without due consideration being paid to it; and, after being once started, it keeps on its rounds through the papers and on mortal lips, going around and around, as on an endless chain, year after year, decade after decade, till nearly all the world thinks it must be a *fact*. To show that I am not writing one thing while practicing another, I will say that my last two days' employment before to-day, February 14 and 15, has been that of putting foundation in sections and frames, and that said foundation for frames was purchased in 1896, and that for sections in the spring of 1898.

And now I wish to say a word about taking what any one says or writes as an established fact. No man or woman should be *only* an imitator of some one else. Set your *own* mind at work, and it will prove to *your own self* what is right and what is wrong, if you will let your hands obey its teaching by way of doing a little experimenting on a small scale. Don't depend on what Dr. Miller, the Roots, Hutchinson, Dadant, Doolittle, or any one else tells you, unless it is right in line with what you want, and proves as they say under your manipulation. If you want something different from what they do, please tell me what there is to hinder *your own self* trying what you want; and then if it proves, after trial, to be just the thing for *you*, tell the world about it, so Dr. Miller, Doolittle, etc., can take advantage of your experiments, as you have been taking advantage of theirs, all along during the past, and thus shall come a *mutual* benefit to the whole bee-fraternity. Don't be afraid of a little experimenting on *your* part; only take my advice and not go in *too heavy*, for it is needless to sacrifice a *whole* apiary to any single experiment, as many seem prone to think they must, if they experiment at all. Hutchinson would never have been a Hutchinson had he been like a Doolittle, nor a Miller a Miller, nor a Dadant a Dadant. And herein lies one of the *great* blessings of life; for this would have been only a very small world had there been none but Doolittles in it.

WORMS IN BOTTOM-BOARDS; INTRODUCING QUEENS; PLAIN SECTIONS A SUCCESS.

I see by report of the bee-keepers' convention at Omaha that some of the bee-keepers are troubled by worms that get into the bottom-boards of hives, and ask for a remedy. Did you ever try soaking the bottom-boards in lime water?

In introducing queens many persons advise placing the cage with queen therein upon the top of the frames, to let the bees get acquainted with the new queen, while some of the bees eat the sugar-candy plug that is in the cage, and

Digitized by Google

release the queen. By placing the cage under the frames, and between two of them, there will be less danger to the queen, for there will not be so many angry bees to have to deal with; and when the queen comes up she has her escort of bees with her to look after and take care of her.

One of your customers speaks of the wavy condition of the honey in the plain section, and lays it to the fact of some of the slats being more than the regulation width apart. I find that it is very important that the hives should be perfectly level, both sidewise and endwise. The plain section is far ahead of the old beeway section, and I would not return to the plain separator for any money. Every customer to whom I sell honey remarks, "How fine the honey in the plain section does look!" I have heard nothing but praise for my honey wherever I have offered it for sale this winter.

Cuba, Kan., Dec. 23. WM. H. EAGERTY.

A COMMITTEE NOMINATED FOR APICULTURAL TERMS.

Dr. Miller wants a word (see Straw on page 905) to signify that a colony has a good laying queen. Would it not be well if the doctor would coin or suggest a suitable term whenever such want occurs to him? I doubt if any one could do it better. I remember that, some time ago, he told us that the bee-keepers of France had a name for a hive that had cast a swarm, and he wished that we had one in our language. Almost every day in swarming time I feel the want of such name. At my home we use the term "parent;" but I don't altogether like it. Who will suggest a better? Would it not be well to name a committee of three or more to whom the work of fixing upon suitable names or terms as occasion may require could be referred? If you think well of the proposal, I will take the liberty of naming Thos. W. Cowan, editor of the *British Bee Journal*, for one. I know all British bee-keepers will support that nomination. What do you think of the suggestion?

In another Straw, p. 905, Dr. M. tells us of the cold, and the difficulty of getting his bees into the cellar. Now, doctor, why don't you come to Canada and enjoy a better climate? Nov. 16 it was at 45°, and the bees were flying, and I put in some. On the 18th, although the bees were flying, we rushed them in; the time had come, and for a few days they had been flying freely, and I have been glad ever since. S. T. PETTIT.

Belmont, Ont.

[I support the names of Mr. Cowan and Dr. Miller; but let them not wait for a formal election, but go right ahead and coin the needed terms.—ED.]

APICULTURAL NOMENCLATURE.

Dr. Miller sighs for a word like the German word "weiselrichtig," to express the fact that a colony has a "good laying queen." Now, if the word expresses the meaning of the words in quotations it contains as many syllables as the three English words do, and as many letters, less two, and is much more difficult to pronounce. How do you think it would do to call her a "hustler," a "corker," or a "daisy"? But perhaps friend Taylor, of the *Review*, would object to such expressions as being contorted words.

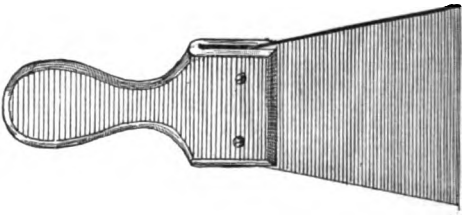
I'm with you in the matter of boiling foul-broody honey. Mercy! Boil two hours, and yet frisky! I could cook a crow in that time.

Hospital, Ill. W. M. WHITNEY.

[We did not understand that Dr. Miller advised the use of the German word itself, but another one as succinct in meaning as that. It would be difficult, probably, to find an English word that would express so much in so short a space without resorting to an arbitrary expression or mark, such as O. K., meaning that the O. K. (Old Kween) is Oll Korrect—in other words, that the colony is properly mothered.—"W. P."]

HANDY TOOL FOR THE APIARY.

In GLEANINGS for May 15, page 400, you write about a tool for separating supers, etc. I send you a duplicate of a tool I have used for years, and found to fill the bill entirely. It is handy to scrape wax and propolis from any part of a hive, using it like a shovel—shoving from you. It is handy for separating frames, and taking off the cover or a super. For me it is strong enough to loosen and part-



ly raise an eight-frame extracting-super with 40 pounds of honey. The blade being thin and wide it can easily be pushed between the super and hive, and it will not make a mark on either of them. It will also serve as a paddle to strike down an irritating bee when it becomes necessary to do so. But the proof of the tool's value will be found in trying it.

J. F. EGGERS.

Grand Island, Neb., July 11.

PLAIN SECTIONS AND OLD-STYLE IN THE SAME SUPER.

I tried a little experiment last fall. I took one Ideal super, and put in half with Ideal sections and fences; in the other half I put the 1⅞ sections and slotted separators. Both kinds of sections were partly drawn comb that had been extracted from. The case, when taken off, contained 15 well-filled Ideal sections; 5 of the 12 1⅞ sections were filled; the other 7 were from two-thirds drawn to nothing. So much in favor of the Ideal. I recommend the Ideal to every new bee-keeper, and old ones too, as the best-looking, easiest-cleaned, and best-packing section in use.

THAD. H. KEELER.

South Salem, N. Y., Jan. 14.

Digitized by Google

CENTRAL CALIFORNIA AS A BEE COUNTRY.

This is not an advertisement, and there is no more room for the bee-keeper who is seeking location; but Central California is about as favored a locality for the honey-producer as there is in the State. We always get some surplus, and at times more.

Hanford is our largest city, and is the business center of the Central California Bee-keepers' Association, of which there are four yearly meetings held each year, with good results. We find that it is an easy matter to produce honey; and it is also quite easy to get rid of it. But the way that the most of the bee-keepers have been disposing of their product has been more profitable for the San Francisco man than for the bee-keeper.

But the organization of the bee-keepers into the association has proved very beneficial to the producer, and the commission man has been compelled to share at least with us.

Our honey-producing territory is small in this vicinity; and if we get 20 cars of honey to the season we do quite well; and in a dry year like the one just past we fall short of that number, and get from 12 to 15 cars.

Our range consists principally of alfalfa; but there are many other plants that yield well in their season. The bee (or Spanish) clover is getting a good start in this part. The honey is equal to that of the alfalfa. The goldentop is a good producer of honey, and makes its appearance each wet year. The honey is what I call a bright amber color.

At this writing, Jan. 16, our bees are gathering pollen from alfilaria, and next month we expect a little fruit-blossom honey; so by the first of March they will be in good condition to begin gathering honey to build up for swarms and the alfalfa flow.

The long-looked-for rain has come to a part of the State; but it has not given us much here, yet the clouds hang heavily about. While it was raining elsewhere it was storing up the snow in the high Sierra Nevada Mountains, and that will be of untold value to us next summer, as we here in this part depend on irrigation for the alfalfa, and hence the honey.

The ten-frame hive is universal here, although I have tried the eight and also the twelve. I find that the latter is just the size for the mountains, as there it is often that the honey-flow is over by the first of July, then there is a long spell when there is no honey; and if a small hive is used, the stores will not be sufficient to run them through until another spring. But here in the valley we have no fear of such, and the ten-frame is large enough, while we think that the eight is too small for a good brood-chamber. F. E. BROWN.

Hanford, Cal., Jan. 16.

OUTLOOK FOR CROPS.

This year promises a better crop than 1898. While a few localities in the San Joaquin Valley enjoyed a splendid honey-flow, several producers clearing about $2000 each, perhaps over that amount, it is an open secret that the average was very poor. Regardless of the dry-year prophets, we are having a warm winter with considerable rain lately—as much as 25 to 75 tons of water falling in a day on an acre of land. Grain is mostly in, and plowing is the order of the day. Nearly all plows have seeder and harrow attached.

GLUCOSE.

The U. S. B. K. Union could accomplish few things of more importance than ruling glucose syrup compounds out of the market, if my judgment is worth any thing. There is a vast amount of such syrup sold on this coast. They compete with extracted honey very directly, and glucose hurts our business just as severely when sold as syrup as when called honey I don't object to running my bees in competition against honest syrup, but they are unable to make much headway against the common adulterated stuff.

THE DOOLITTLE HIVE.

This is not admired so much as formerly by Mr. Doolittle in comparison with other hives, it seems. A nine-years' study of hives convinces me that a ten-frame L. hive will give better results with his management than the hive he uses. Doolittle's management is not possible in a large business. He coaxes uniformly good results where the range admits of it, as his does. The man with several hundred colonies in several locations must have what I call a "let-alone hive," such as the Dadant or the ten-frame L., when run to extracted honey, to be as much as three stories high.

The Heddon is a "coaxing" hive. The various manipulations necessary to achieve the greatest success can be done "with a motion," Mr. Heddon says. However, the "motion" may be seriously needed when you are several miles away at another apiary. To have a splendid location, and keep enough bees in one location to make it a fair business, no other hive would suit me so well. It is a difficult hive to make properly. As nearly all apiarists are trained to Langstroth management it is quite an undertaking to train a hand to the Heddon hive, especially when he shows his disgust at the start by pointing at the hives and saying, "Them things!" To me the question is still open, "Will it not pay to use a let-alone hive and do all the judicious coaxing you have time to?"

IMPORTING QUEENS.

Being convinced of the superiority of the ordinary Italians over mongrels (improperly called hybrids by many), last year I concluded to import some queens. Of six queens started from Italy, four died before reaching me; lost one in introducing; the other one, and almost all the bees in the hive, absconded several weeks after she was introduced. Lately a friend told me that daughters of imported queens frequently abscond with their families. My experience of last year has convinced me that it is cheaper to send to the Eastern States and buy of importers than to send to Italy direct from California. Twenty days on one trip is very trying on both queen and retinue. W. A. GILSTRAP.

Grayson, Cal., Jan. 11.

Digitized by Google

J. M. H., Ohio.—Paraffine can not be mixed with beeswax in any proportion to make a foundation that will answer in the hive. Nothing but pure beeswax can be used in the hive. Even a slight mixture of paraffine will cause combs to melt down.

J. N. P., Colo.—Notching a rabbet at intervals to regulate spacing the frames is a very old idea. It has been used by a good many different ones; but all, so far as I know, with but one exception, have discarded it. You can best see the objection by fitting up a sample hive and trying it.

F. J. C., Ida.—Several years ago we sold what we called our metal-corner frames. They had knife-edge bearings, and carried out just the idea that you show. We finally abandoned them entirely for the wood projection, as the metal edge was liable to get bent, cut the fingers, and, worse, allow the frames to slip around too easily.

J. H. J., Pa.—You can use perforated zinc between the upper and lower stories of a colony for extracted; but if I were doing it I would not use it. There is a certain advantage in letting a queen have the range of both stories, particularly in the matter of keeping down swarming. If I used perforated zinc at all I would put it on top of the second story; then add a third one for extracting purposes only.

A. F. R., Ohio.—You would be pleased with the late edition of our A B C of Bee Culture. The present one contains over 400 pages, and three times as many illustrations as the old book. In answer to your question as to what I understand by brood-chamber, I would state that, technically, it means that part of the hive in which only brood is reared. When we speak of supers we mean that portion of the hive above the brood-chamber, and which is used for the storage of comb or extracted honey. The glossary of our A B C of Bee Culture will give you very full information on all of these different apicultural terms.

F. M. C., Cal.—In regard to a special breeding-queen, I think I know what you want, but fear we may not be able to select such a queen for you until along in the middle of the summer, and then select her from a number of others of the very best queens. This might make her worth something like $25. I hardly think any queen is worth that much money. My advice would be to buy four or five good breeders, paying for them anywhere from $5 to $10. Breed from all the queens, and you will thereby get a composite stock that will be better than if you breed from one queen only. Of course, these $10 queens should come from different breeders. This will avoid in-and-in breeding.

J. A. B., W. Va.—As to soaking honeycombs in carbolic-acid solution to kill foul-brood germs, I do not know that any one has ever proposed the plan. But I feel certain it would be very risky to rely on this disinfectant. I do not believe that carbolic-acid solution in the proportion of one to five hundred, as recommended by Cheshire, is of any use at all. In the scientific tests we made a few years ago, we placed living germs in such solutions. They were then put in pure-culture tubes. After a day or so new growth developed, showing that they had not been killed. I would as soon think that a good soaking in soap and clean water would kill foul brood as soaking in the carbolic-acid solution. If your experiment proved to be successful, it was the process of *cleansing* and not any supposed disinfecting properties of the acid.

G. W. C., N. Y.—You do not specify just how near the highway the proposed location of the apiary is. Ordinarily speaking, I would not have them nearer than fifty yards; but if you do, a high board fence between the bees and the road would enable you to keep them within ten feet. The fence ought to be about eight feet high. This would compel the bees to fly high enough to avoid passersby. I would also get rid of all black and hybrid stock, and keep only gentle Italians. I would also make it a point to see that there is no robbing allowed. Honey should be taken off, or the most of it, before the robbing season commences. Referring again to the matter of a high board fence, I meant to state that it will be worth all it costs as a protection during spring and winter—especially so if the fence should happen to face the prevailing winds.

N. P. A., N. D.—I can not say why honey candies earlier some years than others. In a general way, cold weather is liable to cause liquid honey to granulate. Some seasons one kind of honey will granulate earlier than usual. This may be caused by the fact that the honey is not as thoroughly ripened by the bees. Generally speaking, good thick extracted honey, brought to a temperature of 180, and then sealed while hot, will remain liquid for a considerable length of time, provided, however, that it is kept stored in a room near living temperature. We have had samples keep for us this way in bottles three or four years. While some honey might keep liquid this way, others would candy perhaps in six months. The honey that I refer to was a fine quality of extracted clover.

Some prefer section-holders and some T supers. We prefer section-holders ourselves. The section-holder bottoms we now make are a little heavier, and we do not think they will sag so as to make any trouble.

Regarding Hoffman frames, I will say that there are localities in which propolis renders them a little objectionable, and yours may be one of them. We therefore recommend, instead, our staple-spaced thick-top frames, for particulars of which see catalog we are sending you. These frames have given satisfaction wherever they have been used, and in your locality they would be more easily handled than the Hoffman.

Digitized by Google

THE subscription clerk says the new names are rolling in at a rapid rate. For all this we are grateful. The larger our list, the better, of course, we can make our journal.

THE average bee-journal of the day contains several kinds of matter. One will be a department of short items; another, general articles; another, extracts from letters; another, editorials; and still another, reports of conventions; but in this issue we introduce a rather novel feature, and that is an interview, or what might be called an unconventional convention of two people.

THE department called "Afterthought," by "Cogitator," now running monthly in the *American Bee Journal*, is a good one, and is a real addition to the Old Reliable. But methinks I know who it is that cogitates—yes, I will bet my old hat against York's that I can name the man, simply by the earmarks of his bright breezy paragraphs. Bet? "You bet" I do when I am sure of winning, and have a good man to bet with.

QUITE a number are asking at this time of year what to do with colonies that are afflicted with dysentery. I do not know any thing to do with them but to let them die. Confining the cluster to fewer frames or uniting two or three of them together may help some. But somehow they disappear all the same whether in one or several clusters. The only cure is *continued* warm weather. In this latitude we shall not have settled warm weather for a month yet.

SHIPPING-CASES IMPROPERLY CONSTRUCTED.

A LETTER from one of our leading commission houses urges upon bee keepers the great importance of having shipping-cases with no-drip strips in the bottom. It further urges that the covers should *not* be let down in *between* the sides or ends of the cases, but they should be as long as and wide as the case sitting down on the edges flat, held in position simply by nails. When the cover is dropped into a recess in the case, it is often necessary to split the case to pieces to get at the goods.

So far as I know, the leading manufacturers of bee-keepers' supplies are making the shipping-cases as they should be; that is, they have "no-drip cleats," and the cover lies flat on the case. It is those who attempt to make their own cases, trying to "improve" them, that send out cases of the kind condemned.

THE EVIDENT SIGNS OF THE GROWTH OF THE BEE-KEEPING INDUSTRY.

REFERENCE is made in the *Bee-keepers' Review* to the fact of Bro. York's having printed 15,000 copies of one edition of the *American Bee Journal*, and both Mr. York and Mr. Hutchinson seem to be of the opinion that this is the largest edition of any bee-paper ever published. I have just been looking back over our record, and find we printed single editions of 15,000 of GLEANINGS in April, September, and December, 1895, and later on (I can't find just the record for it) we published an edition of 30,000. This present issue happens to be another 15,000. As the call for sample copies has become large we have been obliged to make this extra number in order to supply the demand. I do not say this with any feeling of "go you one bigger," but refer to it because it may be interesting to bee-keepers to know that our industry calls for such large editions of the different bee-papers. The subscription-list of GLEANINGS is growing rapidly. I understand that the lists of the *Review* and the *Amer. Bee Journal* are also growing. All of this betokens the growth of the industry, and general prosperity among bee-keepers. Another fact is interesting: Two or three years ago there were only three or four supply factories, and now there must be a dozen. All, or nearly all, are working on full time, and several over time, and this in spite of the fact that honey is coming down in price, and glucose has been pushing its way into prominence at a fearful rate. It only goes to show that honey is becoming more and more a staple. Ten years ago it was accounted a luxury, and was put on the table when the "folks had company." But now, if it is used at all, it is on the table every day, and is eaten just like any other sauce.

A HONEY-LEAFLET IN THE FORM OF A HONEY-LABEL.

ONE of our subscribers, referring to the fact that the honey-leaflet did not seem to increase his sales, went around among his customers and inquired whether they read the leaflet or not. Those who did look at it at all said they did not place much confidence in its recipes, as they thought it was a sort of "patent-medicine affair." Why did they think so? simply because there was a doctor's name attached to it! That is a good joke on Dr. Miller—to think of his being styled a patent-medicine crank!

When the question of the honey-leaflet came up in the first place, it was my purpose to prepare the matter myself; but there was Dr. Miller, who, I thought, knew more about the general subject-matter than I; and that he, being a *doctor*, you know, his *ipse dixit* would have some weight.

But this same correspondent hints at an idea that may be worthy of adoption; and that is, putting the general facts about honey on the honey-label, and then, if there is room, put on the honey recipes. Such a label would necessarily have to be large; but in the case of nearly all extracted-honey packages, especially if of tin, the label should go clear around the package, and lap. This would give room enough for the general matter.

WASTED AMMUNITION.

Another subscriber, a lady, writes that it

Digitized by Google

is useless to throw the leaflets on porches, or throw them broadcast anywhere. Wasted ammunition really does more harm than good. She is very careful about the distribution of her leaflets. If she hands one out she draws attention to the value of the honey recipes, and to the interesting matter regarding honey and its production. She also mails a leaflet to all her customers, at the same time adding a word to the effect that she has the right kind of honey—the very kind that is described in the leaflet itself.

WHAT'S THE MATTER WITH HOLTERMANN? PREJUDICE OR CARELESSNESS—WHICH?

In the December issue of the *Canadian Bee Journal* appeared a general criticism of plain sections. Referring to a statement in our catalog, that the new sections, when filled with honey, would bring a higher price because they are better filled out, Mr. Holtermann said:

> If this can be done, how is it that at Toronto, London, and Ottawa exhibitions the plain sections did not distinguish themselves by capturing the prizes on comb honey? The comb honey in the plain section was shown at Toronto, but secured nothing.

Our readers will remember that I referred to this in our issue for December 15th last. While I did not deny his statement I was surprised, because plain sections had held their own, and more than that, at other shows. Soon after GLEANINGS was out I received the following letter having reference to Mr. Holtermann's statement above:

> I might say here that I gave the no-beeway sections, 4¼x4¼, a trial this season, and I am well pleased with them. I used about 1200 of them alongside of the open-end or slotted section, 4¼x4¼x1⅝, with plain separators. This winter I am changing all of my supers to no beeway. I find that I can get from ½ to 1 cent more for no-beeway in the Toronto and Kingston markets. I sent 12 sections to Mr. Hill, one of the officials of the Toronto exhibit, and paid my footing and express both ways. I called unexpectedly at Toronto the last week of the fair, and my honey was still in Manager Hill's office, not opened. I opened it, and showed it to Mr. Holtermann. That is the no-beeway that did not take the prize that he has so much to say about in the *Canadian Bee Journal*, and I am positive there were no more, for I looked very closely, and asked two of the honey-exhibitors if there were any, and they said no—that they wished there were Mr. Holtermann is a friend of mine—that is, a business friend—but I like justice in all things.
>
> C. E. TAYLOR.
>
> Harrowsmith, Ont., Can., Dec. 28, 1898.

This letter I referred to Mr. Holtermann for an explanation. After some correspondence it was agreed that he was to make suitable correction in his own journal; but when in his next number he attempted to excuse himself rather than make a full correction, I was surprised. This is what he says:

> In my article on plain sections I did not mean to say that honey in plain sections had been shown at the leading fairs, but that, if it had produced so superior an article, why did it not take some of the prizes at those fairs? Again at Toronto, plain sections were entered and sent to the exhibition. I saw them there, but through an oversight they were not judged. Yet they simply were not in it for best-filled and cleanest sections. Although it would have been better to make this explanation, it did not occur to me to do it, as it did not affect the position as to their merit.

Mr. Holtermann says they "were entered and sent to the exhibition;" that he "saw them there," as if he were *still* trying to convey the impression that they were *on exhibition*, as, forsooth, he "saw them." To this Mr. Taylor says they were in Manager Hill's office when Mr. Holtermann "saw them." Mr. H. says, again, "Through an oversight they were not judged." Not judged? How could they be if they were shut up in the box they came in from the express office in "Manager Hill's office"? And was the "oversight" in not judging or in not opening the box? And even if they had been judged, he says they "were not in it." Mr. R. F. H.'s prejudice is so apparent in this case, that, if he had been judge, they would not have "been in it," that's sure.

Here is what one of our correspondents, referring to this same attempt at explanation, says:

> He doesn't admit that he said any thing unfair, when he before said practically what was both unfair and untrue. He now says plain sections were entered and sent, but not judged. Why doesn't he say they were not exhibited? If he were entirely fair he would have said something like this: "I said in a former number, 'The comb honey in the plain section was shown at Toronto, but secured nothing.' That was incorrect. The truth is that honey in plain sections was *not* shown there, and had no chance to secure recognition, even if it had been twice as good as any shown." Indeed, if we may indulge the hope that Mr. Holtermann is entirely truthful, there is no power that can prevent him from saying so yet, at the earliest opportunity. And what explanation is there for their being where they were privately seen (if I have the right idea) by Holtermann and others, and Holtermann, in the interest of fairness, didn't see that they *were* exhibited?

I can not think that Mr. Holtermann meant to deliberately misrepresent or to act unfairly; but prejudice or carelessness, seemingly, has so warped his memory that he failed to set forth the facts as they were—that is, if Mr. Taylor's version is correct. I have letters from others, stating that there were no plain sections on exhibition at Toronto. We are all liable to unconscious prejudice or mistakes; but when they are once pointed out, one does not lessen his self-respect by "acknowledging the corn."

THE NATIONAL BEE-KEEPERS' UNION.

A REPORT has been sent to the members, showing the result of the last election. Only 76 votes were cast in all. Out of this number General Manager Newman received 71; and R. L. Taylor, for President, 44; but both Mr. Taylor and Prof. A. J. Cook "positively decline to accept any office" in the Union; and General Manager Newman says: "I feel that, in justice to myself, this must be the last time that I can accept the office. . . I would cheerfully give counsel at any time, or accept a position on the Advisory Board, or take the office of President." When two of the main props of the organization decline to accept office again, and when its General Manager himself says that this must be the last time that he can accept the office, it would seem, in my humble judgment, that now is *the* time to marry the weaker to the stronger, the United States Bee-keepers' Union. Thomas G. Newman, with his long experience, would be a valuable member of the Board of Directors; and now that the new Union has 465 members, and is in a flourishing condition, it would seem as if this were the very thing to do. I

Digitized by Google

make this suggestion with no feeling of exultation over the waning strength of the old Union, and of its probable demise, but on the score of economy and expediency.

That old war-horse, who has truly rendered such valiant service in the old Union, should certainly be an officer in the new organization. For fifteen years he has been at the head of the old Union, being unanimously elected each year. As he is growing in years it is not a wonder that he should feel that he has done his duty.

But amalgamation can not be effected by "mere talk" on the part of bee-journals. Those who are officers of one organization are, in part, officers of the other. If the Advisory Board of the National and the Executive Board of the U. S. B. K. U. recommend amalgamation, then the question can be voted on at the following elections of each Union.

It seems to me simple, easy, and the only thing to do.

FOUL-BROODY HONEY; HOW LONG SHOULD IT BE BOILED TO RENDER IT STERILIZED?

SOME little time ago, as our readers will remember, Dr. Miller criticised my statement to the effect that only a few minutes' boiling would be necessary to kill the germs of foul brood in honey. In this opinion I was backed by R. L. Taylor, who has had a very large experience with foul brood. But Dr. Miller, nothing daunted, finally confronted me with the names of several scientists; among others, that of Dr. W. R. Howard, of Fort Worth, Texas; Bacteriologist J. J. McKenzie, of Ontario, Canada, and a Frenchman by the name of Genonceaux, whose experiments went to show conclusively, in his opinion, that boiling honey even 45 minutes did not necessarily kill the spores of *Bacillus alvei*. He further stated that they found that in some instances it required even two and a half hours to render honey tainted with the microbes of foul brood innoxious. This staggered me somewhat, but I was not then willing to give up, because I insisted that practice was at variance with science; that I never knew of a case where honey from a badly affected colony, boiled only a few minutes, ever gave rise to the disease in a healthy colony fed with it. Then I offered this challenge: That, *if* there was *just one instance* where a practical man found that a few minutes' boiling was insufficient to kill the germs, I would give up. This challenge was accepted by J. A. Buchanan, a man whom I regard as careful and conscientious. He placed before me (see GLEANINGS, page 48) a certain array of facts from his own experience that convinced me that the scientists were right. Later on, a letter from another bee-keeper confirmed the statement made by Mr. Buchanan, but this letter has been mislaid, and I have not been able to find it, so I can not present it to our readers.

Critic Taylor, of the *Bee-keepers' Review*, after considering all of this, characterizes my change of front as "hasty and ill considered;" that "the evidence" of my own "senses" is "a thousand times better than that drawn from some case of which nothing is known concerning the care or skill used." He calls attention to the fact that scientists are not infallible, and in evidence of this he refers to the discussion of years ago on the question of spontaneous generation—a theory that has since been thoroughly exploded; and, moreover, he is surprised that I should so hastily recant my former opinion "without raising any question of skill or care on the evidence of this single case."

Of course, Mr. Taylor did not know of this other letter, not published; and my own excuse for a change of opinion is that it is safer to err on the side that a few minutes' boiling is insufficient; that, if there was any possible doubt (and I certainly think there is good ground for it), we should take that side which we *know* to be safe, and I therefore felt impelled to recommend a boiling of at least three hours.

I have just reread the article by J. A. Buchanan, of whose "skill and care" in making the experiments under consideration Mr. Taylor has some doubt. To me there is every evidence of precaution on his part. If he were a bee-keeper comparatively unknown we might accept his statements with a grain of salt. But he is an old bee-keeper of considerable prominence, and one whose opinions I have learned to respect. But Mr. Buchanan is backed by that one whose letter I have mislaid, and by the three scientists. And it is worthy of note that these three men of science live in three different countries, one of whom, at least, was, I believe, entirely ignorant of the work of the others. As their scientific experiments are backed by the actual experience of one (and possibly two) practical bee-keepers I believe I was wholly justified in recanting in the wholesale manner I did.

Later.—Since writing the foregoing I have found two articles that I think explain *why* boiling in one case 10 minutes may be sufficient, and why in another 40 minutes may not be enough. I'll give them next time.

REPORTS FAVORABLE IN REGARD TO WINTERING.

RIGHT after our last issue was out, the one in which I expressed fears that the prevailing low temperature throughout the country would be the means of killing half the bees, warm weather came on—so warm, indeed, that the bees in our locality had nice cleansing flights. Up to date we find we have lost only three colonies, out of a total of 252 colonies. The rest are in ordinarily good condition. But reports from all portions of the country are uniformly favorable; and the only reason I can assign why the bees did not die off worse is because a change of weather came *just in time* to give the bees a chance to turn over—i. e., seek a new position on the combs. The cold spell, as severe as it was, did not continue long enough to do much damage.

IN our last issue we promised to give in this number a letter from Mr. Uglow relative to getting *Apis dorsata* from the Philippines; but our space is so crowded that we shall have to leave said article over till March 15.

Digitized by Google

Thou shalt not avenge, nor bear any grudge against the children of thy people, but thou shalt love thy neighbor as thyself.—LEV. 19:18.

If you kick a bee-hive the inmates all together sally out to protect their home; and, as a general rule, if you injure any single inmate of that hive the rest behave themselves exactly as if they individually had been bruised or ill treated. If anybody should hit you a blow on your foot you would be as ready to resent it as if that person struck your hand or even your head. In fact, it does not matter particularly where he hits, so it is some part of your body. You resent and resist damage to any member — toe, finger, tooth, or eye. Well, now, the bees behave a good deal as if each individual bee was in a like manner a part of every other individual bee in the hive. And that is right. We admire that very trait. In fact, a very high grade of patriotism prompts every citizen of the United States to rush forward when the life and liberty of any other citizen is threatened. If an American in foreign lands is misused, every American here at home resents the indignity as if he himself had been insulted or injured. Some foreign nations have found this out to their cost. This trait may not be particularly American, but I think it is largely so. Now, if we could expand this so as to cover all humanity, then we should come into that broad open field where the Savior stood while he was here on earth. He loved his fellow-men, *all* of them. We are not told that he ever made any exception, unless it was that he gave his life more for the poor and downtrodden than for the rich and the noble. When we love our fellow-men as in the text above, then we are Godlike. Of course, it comes natural for us to feel a little more responsible for the members of our own family — for the children of our own home; and as a band of bee-keepers I think it is right and pleasing in God's sight to see us unite together to protect our common interests. I think God is pleased to have us exhibit the little trait that I spoke of in the outset. If any bee-keeper is wronged, all other bee-keepers ought to be interested, and ready to resent that wrong.

In our issue for Nov. 15 I told you how bee-keepers, or some of them, were being robbed; and the editor of the *American Bee-keeper*, in a recent issue, offers to be one of a hundred who will give one dollar or five dollars to prosecute the men who managed to get Edward Smith's honey, and who have as yet refused to pay a copper for it. I am always glad to see that spirit, for it is the right one. The Bible says the way of the transgressor is hard; and when we assist in making it hard, we are helping the great God of the universe to carry out his righteous laws. Permit me me to say that these two men—Roe and Robie — have never yet been heard from in any shape or manner. We have exhausted all of our resources, and can not get them to answer. In a recent issue of the *Progressive Bee-keeper* this man Robie received quite a favorable write-up; but the person who did so, of course did not know him, and the editor of that journal had not noticed our warning under the title of "Robbing Bee-keepers." When I called friend Leahy's attention to the matter, he expressed a readiness to do all in his power to have such matters righted; and I think there is not a question but all the bee-journals will heartily co-operate in holding up to scorn (if we can not do any thing more) all those who are robbing bee-keepers by taking their honey and giving nothing in return.

Now, some of the friends may protest and say that friend Robie has probably had bad luck, and can not pay the account. If so, why doesn't he say so, and ask for a little more time? Or if he is so exceedingly unfortuate that there is no prospect that he will ever be able to pay, let him say that he asks to be forgiven for the wrong that he has done. But he is the editor of an agricultural paper; and if he goes on unrebuked he may damage a good many more honest hard-working people —perhaps unfortunate people like himself.

And now this whole matter of collecting accounts comes up before us. What is the right and Christianlike way of proceeding? To cut it short, "what would Jesus do?" If a man is absolutely unable to make even a small payment on what he owes, of course no Christian man or even a good and fair man, would distress him *needlessly*. But if this person proposes (or does without proposing) to continue to get things from others whenever he can do so without being arrested, then he should be stopped by warning people against him or by making him trouble.

There is another phase of this matter that I fear is often overlooked. A little incident will make it plain. A certain kind of coal was going off rapidly from one of our coal-dealers. It went off in the night, and they tracked it and found it in a certain man's shed. No other dealer in town had that kind of coal. The man who had been stealing it nights owned up; but instead of feeling sorry he said he would do the same thing again before he would freeze — that is, if nobody would furnish him work. Well, some might think this sounds very well, and that it is a pretty fair excuse. But the coal-dealer was also a poor man, comparatively. During the severe weather he had sold coal on credit, and to people who perhaps could not pay, until he was in danger of being something like the man who claimed that it was right for him to steal so long as nobody would give him work.

There has been a good deal said about the sins of *rich* people. I want to speak of just one of the sins of poor people. This man laid the blame on the coal-dealer because he could not get work, and tried to make it appear that the *coal-dealer* alone should furnish his coal. Now, no one thinks of claiming for a minute that a man should starve or freeze without doing something. In this case our town would have gladly and willingly supplied him

Digitized by Google

with food and fuel, and the burden would have been borne on the shoulders of a great many, which is the right and proper way to relieve suffering. But the trouble is, the man who was not too proud to *steal* was too proud to "go on the town." I know I am getting on to delicate ground; but it surely is not right that one man, and a poor man at that, should support people who say they can not get work. It should be done by the community at large—by his own friends and neighbors. Our county has a large fine farm, with beautiful brick buildings for the accommodation of our county poor. Nobody wants to go there. A poor old lady who depended on a sewing-machine for a living, during the past winter could not get work. At length she suffered from lack of food and fuel. The neighbors, one after another, took care of her; but the final decision was that it would be better for her to go to the infirmary. There she could have plenty to eat, and a nice warm room, and could use her sewing-machine to good advantage in helping the matron, the manager's wife. She declared she would starve or freeze before she would go to the "poorhouse." The manager's wife finally came after her herself, told her she really wanted somebody to help her with a sewing-machine, and agreed to pay her wages. But she would not go, even then. In fact, they were almost obliged to use force. I do not know but most of our readers would say, "Poor woman! I do not blame her a bit." Well, there is certainly no objection in the world to keeping such a person from the infirmary by donations, or, better still, hunting up work for her. But most people will find this a pretty big job, to keep hunting up work for somebody who either can not or will not hunt it up for himself.

During the past winter there have been great numbers of people seeking work. They have offered to work at any price, and at any thing — at least, many of them have. May I be pardoned for just a little divergence just here? In a great many cases where people are out of work, intemperance has had something to do with it. In the first incident I have mentioned, I think intemperance may have had *all* to do with it. In the case of the poor old lady this was, of course, an exception. But right in our town, when so many people were hunting something to do, a man has been getting absolutely *rich* by selling liquor on the sly; and his riches came, too, perhaps, principally from the poor and destitute.

Now, in this land of ours, especially in the prosperous farming and manufacturing localities, no one should suffer from a lack of food or fuel unless it is those who *can* work but absolutely *will not*. It does not hurt my feelings at all to see such people suffer. In my travels through our own and other States it has rejoiced my heart to notice the beautiful buildings and grounds furnished by the people for the county poor. A little more than a year ago I described the county house and grounds of Belmont Co., Ohio. Well, now, is it not a false pride that prompts any one to say, "I would suffer or steal before I would go to the poorhouse"? If you have some ability, but not very much, why not go and help the manager or his wife? At our county house there are some nice people, and quite able people. Some of them I rejoice to call my particular friends. They assist the manager in looking after those who are more unfortunate. The farm is a nice thrifty one, well taken care of, underdrained, and is growing splendid crops. Since they have put up the new buildings it is a handsome and comfortable place to live. Aside from this, I believe many counties have a plan of letting people stay at home, or with friends, and giving them a little assistance, say during the winter season. Yes, our own infirmary goes so far as to furnish *tobacco* for the comfort of the old people; and when one of the inmates asked if he could have the money instead of the tobacco there was quite a little debate before it was decided that he could draw regularly the value of the tobacco if he would break off and go without it. He came to me one day looking very happy. He had on a pretty fair-looking suit of clothes, and said he had saved his tobacco-money until he had enough to take a visiting-trip off through the country to see his old friends and distant relatives. May God help us to look after the poor and unfortunate in just the way that Jesus would do if he were in our places! May this love, of which I am sure we all have more or less, for our fellow-man, prompt us to let it be general and wide. Perhaps I should say *generous and wide*. Let it not stop at age, sex, or color, nor any thing else. Let us love all our neighbors as we love ourselves, with a consistent and rational love. We have all decided—or if we have not we will some time—that giving money outright is not a very good way. When we discover that some family or person is suffering for fuel or food, supply the deficiency at once, no matter if it takes all the spare change you have. Then state the case to your friends and neighbors; tell them what you have done, and let a large number bear the burden. Then hunt up employment for them. Of course they will, at least as a general rule, prefer employment to money given outright. I suppose every town has an organization that makes it its business to look after things of this sort. The King's Daughters are doing a grand work; but I am really afraid the King's *Sons* are lacking a little.

But let us now consider a little further this matter of robbing bee-keepers. I think that, if the bee-journals act in concert, with the help of their subscribers, they can largely do away with this matter of swindling bee-keepers out of their honey; at least, we can look after persons who are permanently located. Snide commission men who manage to get hold of honey and other products, and sell them and "light out," can not very well be hunted up. But we should all be very careful about trusting anybody who has not a record in the past, and is not quoted by the commercial agencies. I have been studying a good deal as to what should be done with Mr. Robie. He had by far the larger lot of the two. What should we as Christians demand of such a man? Well, I think it will do him good, and do us

Digitized by Google

good, to insist upon a reply of some sort. The example of such men is bad. If he has some arrangement in mind whereby he expects to pay friend Smith, let him tell us of that arrangement, and we will give it the same publicity we have done in showing him up; and when he pays the account, or any part of it, we will also publicly give him credit; and the sooner it transpires that every man who plans to swindle bee-keepers understands that he will be promptly shown up by the bee-journals, the sooner will such swindlers hesitate before they undertake a thing of this kind. Another thing, we want to do away with all of that stripe of commission men who can not afford a postal card to write to their customers, and tell them what progress they make in selling their honey. The commission man or dealer who solicits honey, and then waits a long while before he says any thing after he has received it, should also be shown up. Of course, every person should be given every opportunity in the world to defend himself before giving him publicity. There is no nobler work in this world for any one to do than to *discourage* selfishness and selfish greed in every way in his power. Let us use mild measures first. Let us exhort and entreat. But when neither of these avails, then let us use *law* as well as gospel.

There is another point I wish to take up before closing. Average humanity seems to have a dislike to writing letters or even postal cards. Oh how many troubles would have been saved if somebody had just used a postal card and a pencil, and told us long ago what he finally told at great length after we had sent his account for collection, just because we could not get any scrap of information from him otherwise!

Most of our readers know that GLEANINGS is continued without orders until we are told to stop it. We do this because so much the larger part of our readers prefer to have us do so. Just think of it! between 200 and 300 have had GLEANINGS right along for 25 years. Should we stop sending our journal to one of these friends without orders to do so, there would be a protest in a hurry. Some will say, "What did you stop my journal for?" another, "I would thank you, sir, to keep my journal going until you have orders to stop it. You have money to my credit on your ledgers, and you *know* it." It happens, however, that the subscription clerk does *not* "know it," unless the person tells her that such is the case. Well, we have again and again decided that it was far less trouble all around to keep it going. One good reason is, it is such expensive business to take out the address that is correctly set up in type, and then put it back again without making any mistake when the person renews as soon as he finds his journal stopped. Besides, we give everybody four plain and distinct notices before we send in his account to the collection agency. If you refuse to take the journal from the office, postmasters are expected to inform us of the fact. Unfortunately, however, very few of them do this. A great many bee-keepers move away without telling us of the fact, and let GLEANINGS go to the old postoffice sometimes two or three years. A good many times somebody gets hold of them who values them enough to pay us—that is, after we get hold of the state of affairs. But what I wanted to speak of particularly is this fact: The collection agency seems to have a plan for *making* people talk; and, oh what pitiful letters we do get! I have had several this spring where it would almost make one shed tears to read them. The writer will often wind up by saying something like this:

"Now, I can not for a moment believe that my old friend A. I. Root, who writes the Home Papers, ever authorized any such proceedings as this."

Perhaps the writer tells of poor honey seasons, of floods or drouth; of sickness and death in the family; but he did not tell us a word about it until he and the dear wife, and perhaps the children also, were greatly pained and distressed by a harsh businesslike letter, because nobody had looked after GLEANINGS. A postal card, saying, "Please keep GLEANINGS going, if you can afford to; we have had sickness and lots of trouble; but we want GLEANINGS for the encouragement it gives; and if you can wait a while we will surely make it right," would make all clear. In such a case the subscription clerk notes the circumstances, often referring to myself, for I keep a careful oversight over the whole subscription-list; and if misfortunes continue to come, so it is going to distress the poor friends, or so the party absolutely can *not* pay, we drop it without any hard feelings. Over and over again I have been obliged to say something like this: "Rest assured, dear friend, that The A. I. Root Co. never asks for a copper from any one for something he did not order and did not want." A great many times I leave the matter in this way: After we have got hold of the person, and succeeded in making him talk, I close the correspondence by saying: "And now, my good friend, if GLEANINGS has been worth something to you or to your family, during the past two or three years that it has been sent without orders, we leave it entirely to you to say how much that something is, or whether it is any thing at all."

A great many parties give as an excuse for *continuing* to neglect writing, that they felt ashamed to say any thing until they had some money, and hence did not say any thing. Now, please do not do that. If you can not do any better, tell one of the schoolchildren to write a card to Uncle Amos, telling him they want GLEANINGS kept going, and that they will pay after a while. I like to get letters and postal cards from the children. It indicates that they are helping papa and mamma. Why, I know lots of energetic go ahead bee-keepers who let the children do almost all the writing. They can just as well write business letters as to make pot-hooks in school that do not mean any thing. Perhaps some of the children will think it is a long time since Uncle Amos went to school. And, by the way, it pleases me to see how the children get the hang of the telephones. When Howard and Leland, one or both, had the grip, they used to

Digitized by Google

talk back and forth through the telephone, and they were learning to do business. Now, then, dear fathers and mothers, when you get your children to doing business with postal cards you are helping them a great lot in the way of a practical education, and you are helping the subscription clerk here at the Home of the Honey-bees a great lot also. By the way, let me say to you that, since Blue Eyes is married, her younger sister, Miss Carrie Belle Root, has taken charge of the list, and she is very *anxious* to have every one keep on taking GLEANINGS, if it is really proving helpful.

Just one thing more: You know we have been giving exceedingly liberal premiums during the past few months; in fact, I have almost been scolding the boys because they were so reckless in making offers to people who subscribe. Now, a good many of our old friends do not care for premiums. They just want GLEANINGS itself. Sometimes they have means so they would just as soon pay in advance as not; and this method saves all misunderstandings and unpleasant tangles. In order to assist this class of people we will send GLEANINGS two years for $1.50; three years for $2.00; five years for $3.00. Sometimes several in the same neighborhood club together and take advantage of the above reduced rates. Now, dear friends, remember that Carrie and I have charge of the subscription-list; and on our part we are going to try hard and not let any selfishness creep in. We are going to try to let our readers know that we believe in my favorite little text, "Thou shalt love thy neighbor as thyself."

HOW TO SUPPORT A FAMILY ON A QUARTER OF AN ACRE OF GROUND.

Our readers will perhaps remember that this is the title of one department of our tomato-book. Of course, this quarter of an acre must be for gardening under glass. Well, when you first make your beds, fill them with rich soil and have the side boards all straight and plumb, sound wood, every thing will work nicely. But you will notice, after running this quarter-acre farm one or more winters, and especially after zero freezes, that the boards will be getting out of shape through the influence of frost and wet. If the ground is higher inside of the beds than the paths where you walk in, the freezing of the ground while the beds are not in use tends to spread the boards or plank that support the sashes. And, by the way, our beds were nearly all made of heavy inch hemlock boards. They ought to be 1½, 1¾, or, better still, 2 inch plank; then when supported by the plan given on page 112 of the tomato-book they will be tolerably substantial. Notwithstanding, after the freezing and thawing during the winter the boards will spread more or less. Our remedy so far has been to drive down oak stakes about 2 inches square, the stakes, of course, being driven in line by a cord stretched from one end of the bed to the other; then nail the board securely to said stakes, and saw them off low enough so they will not hold the sash up and let in the frost. But I do not like the stakes; first, because they rot off; then the next heavy frost is liable to pull them out and get things out of shape again.

This spring we are adopting another plan with our old and rickety beds. If your sash are 6 feet long, you want to cut up some strips of dressed pine, say 1x3 inches, just long enough to go across the bed, slipping down between the boards. With 6-feet sash these strips will need to be about 3 inches less than 6 feet in length. Now get out some more similar strips, only narrower and longer—say 1¼ inches wide by six feet long. Nail these narrow strips right in the center of the wider ones, projecting equally beyond each end of the wider ones. Now, if you lay this across the bed the narrow strip will catch on the top while the wide one goes down between the side boards. When the sash are in place they lie on top of the wide strip and come up against the narrow one, making a close joint to keep out frost. Now, this cross-piece, when pushed in place, will hold the side boards *apart* wherever they get too near together; but in order to bring them closer, if they get too far *apart* we need some pieces of heavy galvanized strap iron, bent in the shape of a letter L. The long part of the L is to be put between the two strips of wood before they are nailed together. To start with, two holes should be drilled in this long part for nails to go through and clinch. The short part of the L is to reach down over the outside of the side-boards to the bed. We have just had a lot of these cross-bars made, and painted red. We have them painted red so the boys can see them more readily when they want one. Now, in handling sash in any bed, whenever the sash do not reach, and threaten to drop down and mash the plants in the bed, just go for one of these bars. If you can not bring the sides of the bed up into place by hand, dig away the soil inside a little, and crowd up the refractory board with a crowbar; then crowd down your cross-bar, and put on your sashes. Whenever you are spading up a bed, the crossbar can be easily pulled off; and after the said bars have been kept in place until the ground is well settled and warm, the sides of the bed will probably stay till winter. Anybody who has been vexed and annoyed by having sashes drop down on the plants will readily appreciate this invention.

These crossbars serve another excellent purpose. Later in the season, when the frosts are not so severe, cotton cloth answers very well in place of glass. See description for the way it is used, in the first part of the tomato-book. By all means have your cotton cloth so it can be rolled up. Cotton cloth stretched on frames, I would not have around. The very fact that the wind blows them about so, is objection enough. Well, you can use the

Digitized by Google

cloth rolled up over the same beds where you use glass earlier in the season; but you have got to have rafters across the bed to keep the cloth from sagging down on the plants. These are all the more needed here in the North when you are liable to have quite a fall of snow on the cloth. If the cloth comes flat down on the plants it is but little better than nothing at all. Well, these crossbars I have described are just the thing to hold the cloth from sagging down when the weather is wet, or with the weight of snow on top. With these *movable* rafters you can have them 6, 9, or 12 feet apart according to circumstances. When the cloth is rolled up, if you find the rafters in the way they can be taken off in a second.

Another objection to the cloth covering here in the North is, if they are rolled up wet, or are allowed to become wet after they *are* rolled up, they are very quickly spoiled by rot. I am planning this season to have a suitable covering on the north side of each bed to protect the cloth from wet when it is rolled up. In this way it would last ever so much longer. With most plants there is no need of any cloth covering if the temperature is below freezing, or at any time when it is raining. Whenever it is raining I would rather have plants of almost every description uncovered than not; therefore if you could roll up your cloth covers, and have them in the dry just *before* every rain, it would save your cloth and benefit your plants. If the rain turns to snow I would still let all the hardy stuff remain until the snow commences to be *dry* snow; then roll down your cloth covering.

GROWING STRAWBERRIES IN THE SHADE.

Ever since my visit to Florida, where I saw such beautiful gardens in the shade of the palmetto-trees, I have been studying the matter of partial shade for plants during the intense heat of the summer in our northern localities. Some of the friends may remember that I paid $2.50 for a leaflet containing wonderful secrets of value to farmers. One of the secrets was planting corn and potatoes in alternate rows so the corn would shade the potatoes during the intense heat of the summer. I have often thought I would give this matter a test, but have not yet got around to it. Since then I have had an opportunity of noticing, once or twice, that strawberries seemed to do better where shaded a part of the day than where they were exposed to the full blaze of the noonday sun. In the last *Practical Farmer*, in their symposium from strawberry-growers, I find the following, which you may be sure arrested my attention very strongly:

I have been growing strawberries for 30 years, and have tried various plans for overcoming difficulties, such as cost, winter-killing, frosts, and drought. I have succeeded in overcoming the first two, and, to quite an extent, the remaining ones. I prefer land, in corn-stubble, plowed as early as possible in spring, and well prepared. Mark rows 4 feet apart by dragging a heavy chain on the land. Vigorous runners like Jessie and Crescent I give four feet in the row; Wilson's Albany and Parker Earle, 3 to 3½ feet. Plant a hill of corn between each strawberry-plant, and cultivate for corn and strawberries too. Strawberries thrive better in the shade of the corn than without it. The corn is gathered, and the stalks left standing where they grew. With the first fall of snow you have your winter cover, and every wind adds to it. I have often had two feet of snow over my strawberry-beds, when 20 rods away the groun dwas bare. I do not disturb the stalks until after I harvest the fruit, as they help to modify the frosts during blossoming time, and in resisting evaporation during fruiting time. The crop of corn largely pays cost of production, and an acre of strawberries ready for the pickers should not cost over $10. No damage from winter-killing, danger of frosts and drought diminished; and when the last fruit is gathered, summer-fallow the field, and it is ready for wheat in September. I am growing strawberries for profit and not for style or pleasure. Wilson's Albany, Jessie, Crescent, Haverland and Beder Wood are my favorites.

Ribble, Mich. O. P. CHAPIN.

Now, friends, has any one of you tested either potatoes or strawberries shaded by alternate hills or alternate rows of corn? I am sure the cornstalks would be a most excellent protection, for winter, even if other mulching were used; and when the berries get ripe the cornstalks could be made to be of good service in keeping the fruit out of the mud and dirt. I do not know that I ever had any more satisfactory mulching for keeping the berries out of the dirt than dried-up cornstalks. The greatest objection was it was a good deal of work to place them around the plants.

HOW TO GROW THE LARGEST NUMBER OF PLANTS FROM A SINGLE STRAWBERRY-PLANT IN ONE SEASON.

M. Crawford, in his new catalog, devotes a page to the above. He says that, with proper arrangement, we may raise several hundred or may be a thousand. Of course, it will depend on the variety. If you want a fair description of all the new strawberries on the market, write to M. Crawford, Cuyahoga Falls, Ohio, for his new catalog. I suppose you know that friend C. has been for years authority on every thing pertaining to strawberries. There is one thing about his catalog that is refreshing. He does not praise every new plant he describes.

HEAVIER TESTIMONY STILL IN REGARD TO SWEET CLOVER AS A FORAGE PLANT.

Mr. Root:—I have been reading in GLEANINGS for and against sweet clover. Well, I have had a good deal of experience with it myself, and consider it a valuable plant as a forage for cattle and horses. If cut and allowed to wilt, cows eat it readily and thrive upon it, giving finely flavored milk and butter. Many acres of it are grown here around the shores of Utah Lake, upon land so heavily charged with mineral (alkali) that other crops will not grow at all, just for the purpose of reclaiming the land. After the clover crop, good crops of grain will grow. In addition to the value of the tops, the *roots* are also (*I* consider) more valuable, being one of the best root crops grown for cattle. Why, cows are just crazy for them. How I found this out was, I plowed up a five-acre piece of sweet-clover land in the fall of the year, seven years ago, after the crops had been gathered and the cattle turned into the fields. Imagine my surprise on seeing them all gather upon this piece of plowed land and eat those clover roots down. The cows almost doubled their flow of milk. This lasted for weeks until the land was tramped so solid that they could not get another root out of it, and the plowing, I think, didn't do much good. In addition to these values the plant is valuable as a fiber-producing plant. A number of years ago, at one of our county fairs I saw some fine towels made of the fiber of sweet clover. They looked much like linen, and were very strong. So much for sweet clover. I have no seed to sell.

Provo City, Utah, Feb. 17. ELIAS JOHNSON.

Well, friend J., I am astonished too. Where sweet clover has grown very rank, I have no-

Digitized by Google

ticed the great fleshy roots; but it did not occur to me that they were of any value more than to furnish needed nutriment to the soil—going away down deep into the ground as they do, and pulling up the fertility. I can readily understand, however, that cows that have once acquired a taste for it would eat the fleshy strong-flavored roots. In fact, I have chewed pieces of the root just to see how strongly they were charged with the peculiar flavor that belongs to the flowers, tops, and seeds; and I confess I am astonished again to know that it has been used as a fiber plant. I knew its great value along the shores of Salt Lake. My impression is you have also dropped another valuable hint. In cutting sweet clover for feed it should be cut just before blossoming, and allowed only to wilt instead of getting dry. If it gets too dry the leaves drop off; but I think it can be cured without any trouble when it is only wilted, as you say. I believe much the same treatment is used to get the best quality of alfalfa hay.

THE NEW GIGANTIC GIBRALTAR ONION; MANUM GIVES HIS EXPERIENCE WITH THEM.

I tried them last year and I find them very large and sweet. They are the nicest onion to eat raw that I ever saw. I have passed them around among my neighbors, and all pronounce them very fine. One man said he could eat one of them as freely as an apple. I find they will keep well if braced up. I have some fine ones *now*; but if kept in boxes or barrels, even in potato-boxes, they will not keep well.

Bristol, Vt. A. E. MANUM.

LESSONS TO BE GATHERED FROM THE ZERO WEATHER.

The first one is, that any one who wants proof that neither Hicks nor anybody else in the line of weather-prophets has any sort of glimpse of what the weather will be a whole year ahead, or even a month, can now have such proofs. The weather for the first half of February has given the almanac-makers a chance to immortalize themselves if they are honest. And, by the way, not a year passes that we do not have some marked divergence in weather, and something that is so widespread that a weather-prophet, if he had *any* glimpse at all into the future, would be sure to take cognizance of it. Will the good friends who insist that there are prophets who can tell the weather a year ahead, point us to the place where anybody has predicted this present blizzard? The thermometer may have been lower in some localities; but my impression is that no one living ever saw the mercury so low, for so many days in succession, and clear sunny days at that.

Another lesson is, have your cellars, houses, stock, and perishable crops fixed so as to be safe in spite of severe weather. I was more fortunate than I knew of when I fixed the steam-pipes so as to have them hot under the floors of our home. No water-pipes have been frozen or burst, and nothing has been injured, and I can say almost as much for our water-pipes here in the factory. But we have suffered some slight damage. For a good many years I have thought bee-keepers did not realize the importance of chaff hives of some sort; and I still think that the chaff hive of my planning, as given in the A B C book, is about what is needed for such a winter as this. In our locality, about 20 below zero is the coldest recorded, by accurate thermometers. We are told by the papers that even in the neighboring State of Michigan, in the northern part, they have a record of *50 below zero*. Very likely many bee-keepers will suffer.

Our Roll of Honor.

I want to join the "Roll of Honor," as we began to take GLEANINGS in 1879, and have almost all the numbers since then. I lent some out which were never returned. We have quite a pile of "Juvenile" GLEANINGS; also have A. I. Root's picture with Blue Eyes. I do not think I can ever give up GLEANINGS. Our Homes has been a great help to me, and I do enjoy reading the whole of it. I should like to clasp the hands of all the A. I. Root family, but more especially those of A. I. Root. MRS. A. C. HARTWELL.

Challacombe, Ill., Jan. 11.

I have taken GLEANINGS since 1876, and I have them all yet. Part of them are bound, but the most of them are simply tied in four places with stout strings after they are arranged in regular order, so I can refer to any year's journal in the past 23 years that I see fit to. I have been thinking you may get yourselves into more of a job than you bargained for by offering the journal to old standby subscribers. We *all* enjoy the Home Papers first rate, and have been very much encouraged in our religious warfare. For my *own* part I guess I should have given up the bee business long ago if it had not been for GLEANINGS.

Bedford, Iowa, Jan. 11. JAS. S. WILLARD.

I wish to be numbered among the stay-by friends of GLEANINGS, having been a subscriber about 21 years, as nearly as I can remember. Through a mistake of the postmaster, several copies addressed to Frank Sage, Colebrook, Conn., fell into my hands. I was a boy then, but I remember very distinctly the struggle I had with my conscience as to whether it was right for me to keep those few numbers or not; but, thanks to the influence of the Home Papers, right prevailed, and I returned them. I sent on my subscription, bought up the back numbers, and, as the Sunday-school books say, have been happy ever since. I have Vol. I. to V. bound in one book, besides several other volumes neatly bound. We hold all Rootville in the highest esteem, and hope that Uncle Amos and his faithful wife may be spared to us a good many years yet. BURTON L. SAGE.

New Haven, Conn., Jan. 11.

I am tied up in the house with the grip, or I should have written before this time. My bee-keeping commenced in the fifties, with Quinby's box hive; then some time in the sixties I read Langstroth, and subscribed for the *American Bee Journal*, published by Sam'l Wagner, Washington, D. C. I have copies of the *A. B. J.* of about this time, with articles from Novice, which were read with very great interest, as I was then practicing with the frame hive, swarming artificially, and rearing my first Italian queens. I was interested in every thing that could give me any light on the subject. In the early seventies, my health failing, it was deemed best for me to go away from bees a few years; so in 1873 I came to Denver and missed the first volumes of GLEANINGS, but I suppose my partner had them in Illinois. In looking over my pile of volumes I find the oldest is for 1876. The Home Papers I have from the first; and I must bear testimony to their great helpfulness to me these many years. I have also been very much interested in your health talks, travels, etc. Your true friend and brother in the Lord, J. L. PEABODY.

Denver, Colo., Jan. 10.

I hope you will excuse me for presenting my name as one of the veterans in taking GLEANINGS, so late in the day; but, nevertheless, I want you to know that I am one of them if no more. I commenced with the second volume, and I have all up to the present, filed away. I learned many a lesson from GLEANINGS, and I love to go away back in mind to those early days and ponder over and live over those happy

Digitized by Google

days. I have met you but once, and that was at the convention of the North American Bee-keepers' Society at Indianapolis, in 1886. I then lived in Indiana. Probably you remember my exhibit of honey at that meeting. You saw some work done by the bees, with my help, that you likely never saw before, and none since. That was letters formed in penmanship, my address in full, and a skeleton of a queen. This was a part of a display of honey that I exhibited at our State fair a few days previously. One other thing I wish to mention: I exhibited some of those plain sections of honey at that fair you have been talking about of late, and I have some of those fence separators to-day that I made then, as nearly like those you are using now as can be from pictures in GLEANINGS, and those plain sections gave me a good display every time So much for plain sections away back in early days.

I now live in Indiana. I helped organize the State Bee-keepers' Society at Indianapolis and was the first to introduce the socials or picnics in Indiana in which meetings I enjoyed many a happy hour. I still take GLEANINGS, and always expect to as long as I live and it is published. A. Cox.

Summertown, Tenn., Jan. 14.

I received your present. Accept thanks. I showed it to the children, and they are busy comparing it with the real cells They read GLEANINGS and are well acquainted with "Uncle Amos." In fact, our oldest son is named Amos. He is 19 years old, and wanted to go and fight the Spaniards.

We are in the foot-hills of the Coast Range of mountains, about forty miles from the coast; nearest railroad station is nine miles. The honey flora here is the afilaria, vine maple, mountain sage. The afilaria will grow all winter, and bloom when the sun shines. The vine maple blooms just after fruit-bloom, and the mountain sage blooms in June. The country here is very different from the East, there being two seasons —the wet and dry. It seldom freezes, and stock of all kind does fairly well all winter. Bees generally winter well, and fly almost every day, and carry pollen all winter, We have all had the grip, and know how to sympathize with you. There is a mineral spring close to us, the water of which is good for grip; in fact, I believe the water will cure many stomach troubles. JESSE W. THORNTON.

Oak Creek, Ore., Feb. 14.

I have taken GLEANINGS since the fall of 1883. You sent it to me gratis one year in consideration of my having been sick so long. That drew me very close to you, for I had learned to love you through your Home Papers Our Homes turned my thoughts in the right way. They taught me of Jesus. I sought him and found him, *bless his name*. I have always wanted to tell you, but didn't quite know how. Please excuse my blundering, and remember that I expect to take GLEANINGS as long as I am able to read it, and I feel it will continue to prosper. May God bless you for the good work you are doing. C. W. VANHOUTEN.

Cuba, Ill., Jan. 11.

In response to your call for those who have taken your paper for 25 years or more, I stand up and speak. I am not sure that I have any right to arise, as I have not any record at hand to refer to. I think I commenced taking GLEANINGS some time in the second year you published it. I first saw a copy at my old friend's, Moses Quinby. I subscribed for it at once, also sent for the back numbers. I have every issue of GLEANINGS that ever was printed, and I prize them, as they contain a vast amount of useful information. If I am not old enough to be in your class, please omit me and there will be no harm done.

Randallsville, N. Y., Jan. 21. E. D. CLARK.

I wish not to claim to belong to the Roll of Honor; but as I became interested in bees in the 70's I subscribed for GLEANINGS in 1878. Bee-keeping is a side issue with me, and very largely recreative. My yield last season was 60 lbs. of comb honey per colony. I greatly admire the principles set forth in GLEANINGS, of thrift, morality, and Christianity, and trust that you may be spared many years yet to your sphere of usefulness. F. P. NASH.

710 O St., Washington, D. C., Feb. 20.

Friend Root:—After reading the letters from old-timers I examined my stack of GLEANINGS, which is over 3 ft. high, and found volume III., 1875. I have been a subscriber ever since, and expect to be as long as I live. R. B. PARKER.

La Fayette, Ind., Jan. 17.

I have taken GLEANINGS ever since it was first published; and if I am not too late I will accept the "little present." I can not remember how many years since the first number came out. G. W. DEAN.

Boneta, O., Jan. 13.

I have been a subscriber since 1876. I then lived in Lapeer, Mich. I farm and operate a cotton-gin in connection with bees; but I prefer working with the latter. While bees fail some years to return any income, I believe that, after my 16 years in Texas, they can be depended on as well as or better than any other rural industry. WM. WRIGGLESWORTH.

Ocee, Tex., Jan. 5.

RIDING ON SUNDAY FOR PLEASURE.

Friend Root:—I want to enter a protest against your article, "Notes of Travel," for Jan. 1, especially at this time when the tendency is to break down the Christian Sabbath—yea, the American Sabbath—and make it a holiday. Earnest men and women all over the country are working, writing, and praying to stop this very evil that you are laughing about and print in a public journal I refer to wheel-riding on Sunday, for pleasure, and yourself a preacher of righteousness!

Years ago temperance (?) men would take a trip back into the woods, and there indulge in the "good crather." O consistency! thou art a jewel. But I never knew them to come home and tell about it. Dear Bro. Root, for the sake of our young people, and for the sake of our Lord's day, frown down every thing that is merely "worldly pleasure." If I have written too strongly, pardon me, for I felt that I must speak out Your temperance talk in the same issue did me lots of good. G. S. STANCLIFF.

Chasm Falls, N. Y., Jan. 6.

Dear brother, we so nearly agree in this matter, that, if you will not come over and stand on my side, I don't know but I shall have to confess I did wrong, and go over and stand on *your* side. I should have added, at the time I wrote that, were it not for the amount of space it was going to take, that I never ride my wheel on Sunday for pleasure, neither does Bro. Kratz, I am sure. I use it to go to meeting, and to go out in the country when asked to speak or help in a Sunday-school, but never for recreation. In the case you allude to, Bro. Kratz uses his wheel a great deal to make his appointments to preach. He had never seen a chainless wheel, but had heard much about them. All the riding he did that Sunday morning occupied only a few minutes, and there was nobody present to take it as an example. Perhaps I did wrong to mention the matter at all. In attendance at that Sunday meeting there were quite a lot of youngsters. After the meeting was over I saw that they were quite curious about that wheel that had no chain. Now, was it my duty to look sober and solemn because it was Sunday, and refrain from looking at or speaking of the wheel? I can not think it was. I showed it to the boys, got to talking with them about it, and answered their questions and let them see that I was not only flesh and blood like themselves, but that I had boyish ideas and sympathies, even if I *was* gray-headed. I did not get on to it, nor ask the boys to get on; but I did use it as a means of getting acquainted, and letting the boys know that I loved them, and felt anxious about them, and sympathized with them in their sports and pleasures. We might not all draw the line in the same place, but I do think we may err in both directions. May the Holy Spirit guide and direct us!

Digitized by Google

BUSINESS PROSPECTS.

At this date last year we had shipped twenty-five full carloads, while we have sent thirty-five this year up to the same time. We are now shipping five or six cars a week, and have orders booked for over twenty cars. Smaller orders are coming in quite freely, and are being filled promptly. We have a much larger stock on hand to draw from than we had at the same time last year. Reports come from various localities of heavy losses in bees; and while we shall undoubtedly have all the business we can handle to advantage, it would be larger but for the recent extremely cold weather.

FACILITIES FURTHER INCREASED.

Our new engine was drawing so heavily on the old battery of boilers that we have found it necessary for safety to put in a new boiler of 350 H. P. capacity. This is being put in position as we go to press, and, we anticipate, will be in operation within two weeks. We shall then be able to hitch still more machinery on to the new engine if we can find a place to put it. We are able now to turn out about one-fourth more goods than with our capacity of a year ago.

METAL GOODS ADVANCING.

There are such marked advances in price occurring in almost all kinds of metal goods that we may not be able to maintain present prices very long on such goods. We have anticipated our wants for the season as nearly as we could estimate, and bought heavily before these advances occurred. Some of these supplies may run out before the season is over, and when we have to buy new stock at advanced prices we may be compelled to advance the price of the finished product. The early bird catches the worm. Moral—order early.

HYDE-SCHOLL SEPARATORS.

In a recent issue of GLEANINGS we illustrated the H. S. separators, and gave a description by the introducer. We have just shipped to O. P. Hyde & Son, at Hutto, Tex., a carload of goods, and among them were 5000 No. 1 H.-S. separators made of wood, and 500 of tin, also about 5000 No. 2 of wood, and 500 of tin The No. 1 is used with the regular slotted section-holders with sections slotted four sides. They are $\frac{1}{4}$ thick, 4¼x18⅛, and can be furnished at $1 10 per 100; 500 for $5.00. The No. 1 of tin are only 3¾ inches wide, straight on both edges, as they are to be nailed to the section-holders. Price of these is $2.00 per 100. The No. 2 H.-S. separators are used with the 3⅝x5x1½ plain sections in the Ideal super, and have cleats and spacing-buttons on them. Price in wood, $1.75 per 100; or in tin, $3.50 per 100. We can not say that we can recommend these separators; but as we had to rig up tools for making them we are prepared to furnish them to any who may wish to try them.

A NEW SUPER FOUNDATION.

Mr. Weed has just finished a set of dies for making super foundation, 10 feet to the pound. The principal features of this are that the base is as thin as that of the natural, and the foundation nearly ¼ inch thick; but instead of being thin, like other foundation, walls are wedge-shaped — large at the bottom and taper to a point at the top edges of the cells. It *looks* very much like ordinary deep-wall foundation, but is in reality very different. As Mr. Weed has only small dies, and desires these for experimental purposes before making large dies, we will furnish this foundation in limited quantities at the rate of $1.00 per lb. Samples will be sent for 15 c.

According to our previous experiments the bees require considerable wax in the walls, and, no matter how thick the said walls are, they will thin them down, but not so the base. This latter must be as thin as the bees make it. For this reason we confidently expect this new foundation will give the nearest approach to no-gob comb honey of any thing ever yet produced; and we also expect that it will be worked out quicker than the drawn foundation we formerly made. We will have cuts in our next issue that will show the product, so that a better understanding of its general character may be had.

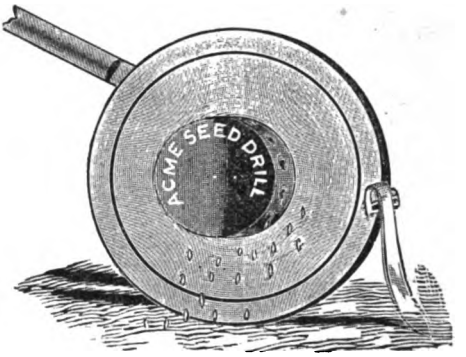
Mr. Poppleton, of Florida, has already tested it; and although the pieces ran 6 ft. to the pound, the walls and base were as thin as natural when worked out into comb by the bees.

Special Notices by A. I. Root.

On page 195, instead of "braced" onions read "traced" onions.

A LOW-PRICED SEED-DRILL SUITABLE FOR GARDENING UNDER GLASS, ETC.

The drill pictured below, I know, will work all right, because we have used one made on a similar principle, for many years. It can not very well clog, and it drops about as evenly as any drill that can be made on any principle.



A NEW LOW-PRICED HAND SEED-DRILL.

The price of the above little machine is only 60 cents, and for 20 cents more it can be sent anywhere by mail. There is no machinery about it to get out of order. You can quickly adjust it so as to drop the seeds thick or thin as you want them by running it along the floor. If your seeds are high-priced, like cauliflower, lay down a newspaper, and then you can easily scrape up your seeds and save them. We have the drills in stock ready to send out by the first mail or by express. These are especially for sowing seeds in hot-beds and cold-frames.

PRICES ON STRAWBERRY-PLANTS FOR THE SPRING OF 1899.

Let me say at the outset that I can not grow good plants at the prices they are offered now in almost all of the agricultural papers. I do not mean to say that those that are offered for $1.50 per 1000 are not good, for I do not know. I do know, however, that ours are true to name, and grown in ground that has been made exceedingly rich at great expense. The best prices we care to make on the standard old varieties will be as follows: 15 cts. for 10 plants; 60 cts. per 100; $4.00 per 1000. These prices are for the first column.

The new varieties listed in second column will be one-half more than the above prices, with the exception of the Nick Ohmer, which will be twice the above prices.

OLD STANDARD VARIETIES.	NEWER VARIETIES.
Jessie	Rio.
Haverland (Imp.).	Marshall.
Bubach (Imp.).	Carrie (Imp.).
Warfield (Imp.).	Wm Belt.
Edgar Queen (Imp.).	Margaret.
Sharpless.	Nick Ohmer.
Parker Earle.	Brandywine.

Above by mail at an additional cost of 5 cts. for 10, or 25 cts. for 100. The varieties are all perfect, with the exception of those marked "Imp.," which are imperfect. We shall probably be ready to ship strawberry-plants as soon as this reaches you. In the lists we have made, the first mentioned are the earliest, and the last, latest.

If you want my opinion as to the best strawberry—that is the best eating right from the patch, I would put the Sharpless at the head. If you want the earliest *good-sized* berry, I would recommend the Rio. If you want the most prolific—that is, the one that bears the most quarts—I would suggest Warfield, Haverland, and also Parker Earle if you give the latter exceedingly good culture and rich ground. If you want

Digitized by Google

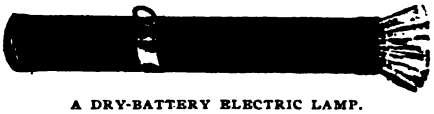
the largest berry I rather think it would be the Nick Ohmer. If you want the firmest for shipping, it would be the Brandywine. The handsomest berry is, perhaps, the Marshall. So you see there are many things to be considered in saying which is best, all around.

KENDEL'S GIANT SWEET CORN, ETC.

As a single customer offered to take the whole four bushels I advertised at $3.50 per bushel in our last issue (but I did not let him have it *all*) we have been obliged to advance the price to 20 cts. per quart; $1.25 per peck; $4.50 per bushel. It looks now as if those who grew some choice sweet corn for seed last season did about as well as those who raised seed beans. By the way, we have just secured some *home-grown* beans, 13 bushels in all, of Navy, York State marrow, and white kidney. Price will be given on application. Wax beans, both green and yellow podded, are going to be practically out of the market, and I am afraid they will be gone before it is time to plant them here in the North. We have been sending north, east, south, and west, but the reply comes every time, "Sold out"—that is, where anybody wants a bushel or more.

A PORTABLE ELECTRIC LAMP.

I have been for years waiting and watching for two things that I was sure would come, and now they are both here. The first was a dry battery that would give a good strong current, and which could be sold for a nickel. This 5-cent battery weighs only 4 oz., and yet it gives quite a strong current that may be used for a great variety of purposes. The second was a portable electric lamp to be worked with these cheap dry batteries. I have had one in use for a year, in a square form, that cost $5.00. Recently an apparatus, represented in the cut below, has come out for only $3.50; smaller size, $2.50.



A DRY-BATTERY ELECTRIC LAMP.

The whole apparatus is 14½ inches long, and about 1¾ in diameter. It contains four cells of the cheap battery I have been speaking about. On one end is an electric globe well protected, and on the other a cap that can be turned on or off. Turning it on produces a light, and the opposite way extinguishes it. This apparatus will give 20,000 flashes of brilliant light; or it will give a steady light for ten hours; or you can use it a second, a minute, or fifteen minutes, until you have used up the whole ten hours. The dry batteries themselves are good for from 60 to 90 days. The apparatus weighs just 1½ lbs. It can be used as a bicycle-lamp, or for exploring caves, tunnels, dark closets, etc. It is a splendid thing for plumbers who are obliged to work in dark corners, especially where leaking gas might induce an explosion with any common lamp or lantern. When making connections for our pipes to carry steam from our factory over to my home we had got almost through one night but it was growing dark, and there was too much wind to use any sort of lamp. The men thought they would have to give it up, although it was in the dead of winter, and a storm was coming. I told them I could put a strong light right on the pipes and connections. They had but little faith; but I ran for my electric lamp, and soon made their work plainer down in that muddy ditch than it would have been in open daylight, and the work was finished. At another time when a hot box shut down our whole factory it was desirable to have a strong light down between the raised-up shaft and the box of babbitt metal. My electric lamp hit the spot exactly. When Mrs. Root wakes up in the night, and wishes to see the dial of the clock, just one flash of my little lamp makes it plain. If she were to scratch a match it would wake me up. You press the button, and a beautiful light shines on the spot you wish to see, and nowhere else. Release the button, and it is gone. The lamp I use can be made to give a tolerable light for from 15 to 20 hours. When your light is gone, a new battery costs 20 cts.; so you see the light costs only about a cent an hour, and you can have it in installments of a second at a time if you wish. Some of our people think I make a big fuss about a little matter; but I tell you this is one of the achievements of modern science, and sooner or later is destined to play a great part in the machinery of life. For further particulars address the The Acme Electric Co., 1659 Broadway, New York.

CHEMICAL EXAMINATION OF CANNED MEATS.

The above is the title of a bulletin just issued from the Department of Agriculture, and this bulletin is from our good friend Prof. Wiley, U. S. Chemist. Samples of all the canned meats in the open markets of the United States, as well as samples furnished by the War Department, show that our canned meats are honest, straight goods. Not a single can has been discovered that showed that the nutritious part had been extracted to make extract of beef. The canned *corn* beef contained a very small amount of common salt, and also a little saltpeter; but the quantity was no larger than that found in the average farmer's beef or pork barrel. It makes one think of the silly stories of a year ago about the comb honey produced by honest bee-keepers being manufactured out of glucose and paraffine. At the time the statement was made through the papers that our canned meats were unwholesome I felt sure it was a mistake, for I have frequently partaken of them freely in traveling, when I have found myself unable to get fresh meat; and the contents of the cans have always been good and wholesome. Prof. Wiley further states that they found the cans made of good tin, and the soldering was done in such a way that not a trace of any thing unwholesome was found in any can that might have come from either the solder or the metals forming the can. I rejoice at this, because it is a fearful thing to spoil the confidence of our people in wholesome food products by any such unwarranted and untruthful statements.

Now, another big point comes in right here: Prof. Wiley says very positively what our medical men have been repeating for years past, that using borax, salicylic acid, or any such chemical, for preserving fruits, vegetables, or meats, is a thing that should be condemned. Not a trace of any thing of this sort was found in any of the canned meats on our markets. I believe our government is justified, not only in arresting parties for selling "preserving-powders," but I think our periodicals should be restrained from advertising any such pernicious compounds. Of course, they preserve fruits and vegetables so as to have them look very wholesome and appetizing; but the same powerful chemical that arrests decay prevents digestion and injures the stomach.

EARLIEST QUEENS reared in U. S.; increased facilities for promptness; all queens guaranteed. Write for prices from half dozen to 100
J. B. CASE, Port Orange, Fla.

Gleanings for the rest of the year for 50 Cents.

For the rest of the year—that is, from the time you send in your subscription till January, 1900—we will send GLEANINGS for **50** cts. The sooner you send your 50 cts. the more numbers you will get.

Our Low Clubbing Offer, or Two Papers for the Price of one.

For $1.00, sent in advance, we will send **Gleanings** one year, the **American Agriculturist,** and the Farmer's Almanac. In place of the *Agriculturist*, with no addition in price, may be taken the **O. Judd Farmer** or the **Prairie Farmer.**

For $1.10 we will send **Gleanings** one year, and either the **Ohio Farmer** or the **Michigan Farmer** one year. Send in your orders early.

The A. I. Root Company,
Medina, Ohio.

Digitized by Google

Vol. XXVII. MARCH 15, 1899. No. 6.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES, HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA, OHIO.

MURRAY-HEISS CLEVELAND O

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Digitized by Google

BE YOUR OWN AGENT

and Save Money. Every time you buy an article from an agent or dealer you must pay him a liberal commission in addition to the actual value of the article. In many cases this places an article beyond your reach.

WE HAVE NO AGENTS

but sell you vehicles and harness direct from our factory at wholesale prices.

We are the largest manufacturers of carriages and harness in the world selling to the consumer exclusively. We make 170 styles of vehicles, surreys, as low as $30, and 65 styles of harness. **Remember** that we ship our goods anywhere for examination and guarantee safe delivery.

No. 191. Fancy Body Top Buggy, is complete with side lamps, fenders, side curtains, storm apron and shafts. Price $50, as good as dealers sell for $80.

Write at once for Illustrated Catalogue—FREE.

Elkhart Carriage & Harness Mfg. Co.
W. B. Pratt, Secy. ***Elkhart, Indiana.***

In writing advertisers, please mention GLEANINGS.

Barnes'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. ***Machines on trial.*** Send for illustrated catalogue and prices.

W. F. & John Barnes Co.,
545 Ruby St.,
Rockford, - - Ill.

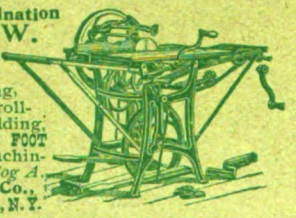
$26 REAL BARGAINS

Road Wagons at $16.45
Top Road Wagons at $22.70
Top Buggies at $26.00

Surries $43.50; Phaetons $37; Spring Wagons $29; Single Harness $3.75; Farm Harness $12. Also Carts, Saddles and everything in the vehicle line at lowest **wholesale prices.** All correct in style, quality and workmanship. Buy direct from factory. Save dealer's profits. We sell one or more as low as others sell in car lots, and ship C. O. D. with privilege of examination. Guaranteed as represented or money refunded. Write for catalogue and testimonials ***Free.***

CASH BUYERS' UNION, 158 W. VanBuren St. B 345, Chicago

Union Combination SAW.



For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT** and **HAND POWER** machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St, Seneca Falls, N. Y.

In writing to advertisers, mention Gleanings.

PEACH TREES

4 to 6 ft. at 3½ cts.; 3 to 4 ft. at 2½ cts.; all one year from bud; healthy and thrifty; no scale. Official certificate accompanies each shipment. Sample by express if wanted. Can ship any time. Trees kept dormant till May 10. **R. S. Johnston, Box 43, Stockley, Del.**

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

The Improved-Robbins Potato Planter never misses and never doubles in a hill. It is guaranteed to give satisfaction.

Plants 4 to 7 acres a day.

Iron Age Sense

Good sense applied to potato planting resulted in the **Improved-Robbins Potato Planter.** Good mechanical sense perfected it, and good farming sense makes use of it. It saves time at the busiest time of the year. Saves wages. Saves crops by seeding every hill. Saves fertilizers by perfect sowing. Far better than hand dropping. **First order** in new territory secures special price. **Iron Age Book** of farm and garden implements free.

BATEMAN MFG. CO.,
Box 120, Grenloch, N. J.

In writing advertisers, mention GLEANINGS.

No Money in Advance!

$15.50 HIGH GRADE BICYCLES

Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men Women, Boys and Girls, well made and durable.

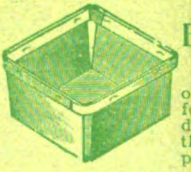
$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made. Others at $10, $13.50, $15.50, $17.50 & $19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

Fruit Packages of All Kinds.

—ALSO—

Bee-keepers' Supplies.



We allow a Liberal Discount on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - - Erie Co., Ohio.

In writing advertisers mention Gleanings.

Digitized by Google

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

VOL. XXVII. MAR. 15, 1899. No. 6.

STRAY STRAWS FROM DR C. C. MILLER

DISCREPANCY between statements on pp. 170 and 186 as to high board fences being bad or good for bees. Wonder if the thing doesn't vary as to locality.

THAT HOME TALK of A. I. Root, last number, made me think what a reliable set in general bee-keepers are. I never lost a cent by one of them except once.

DOOLITTLE says he's using foundation more than two years old. Say, Doolittle, last year I used lots of brood foundation six years old, and I couldn't see but it was as good as new.

HARD MAPLE grows fast, according to a statement on p. 168. Any thing but fast, "in this locality." [Very slowly here, and yet all depends on what is meant by "slowly." That is a relative term.—ED.]

"IT IS NEEDLESS to sacrifice a *whole* apiary to any single experiment," says Doolittle, p. 183. Of course it is; but why couldn't you tell me of my faults privately, Doolittle, instead of coming out in that public manner?

I'M REQUESTED to tear in pieces C. P. Dadant for so strongly advocating big hives. The trouble is, I can't find out whether he's right or not. In the meantime I might set on him my good friend D. N. Ritchie, the man who gets good crops of honey with marvelously small hives.

"I WOULD STEAL before I would go to the poorhouse," A. I. Root thinks is false pride. I should say so. When you simmer it down, that means, "I'd rather steal $100 from a single person than to take it honestly from a lot of people who are willing to make me a present of that amount."

DZIERZON offers a new kink. Clip both sides of a virgin queen in the house before a window till she flies with some difficulty, and she'll be fertilized near home (Aspinwall's idea), and then when she gets to laying she'll need no other clipping. [This will be a rather delicate job. In actual practice I should expect that either there would be too much clipped off the wings, so the queen would get lost, or not enough so but she could fly just as far as she pleased.—ED.]

THE SUM OF $30,000 was lately paid for a new carnation. Yesterday I stood admiring a vase of the flowers in Chicago. Pulling out my rule I found each measured fully 3 inches across, and I thought, "When so much can be done with a flower, why can't red clover tongues be produced in bees, and also non-swarmers?"

KEEPING HUSHED UP the presence of foul brood, as mentioned p. 176, seems about the natural thing to do, but there may be a little question whether it's the best thing. Where there's a case of smallpox I've known the family very anxious to have it hushed up; but the public authorities insisted on having the house very distinctly placarded "Smallpox!"

A. E. MANUM doubts "that bees purposely make use of foreign substances" in cappings. If he will turn to Cheshire, p. 174, he can see a picture of brood-capping magnified 35 times, and will learn that the *major portion* of brood-cappings is made up of nibblings and scraps, cocoons, and pollen-grains, and from this same contamination "not even the cleanest super-comb is free."

IN REPLY to H. L., my best colonies have perhaps 13 frames of brood at beginning of clover harvest, the average being 8. How is it at Medina? [My best comb and extracted honey colonies (and you know I run for both on the same hive) would have ten and twelve frames of brood; but about the time honey begins to come in well, if the season holds out I get them on to about eight.—ED.]

THAT CONSOLIDATION of 18 swarms, p. 174, reminds me. Years ago I visited E. D. Godfrey, Red Oak, Iowa, and he gave me a vivid account of an experience he had had. I think it was 60 colonies that were taken out of cellar in spring, and about all of them swarmed out at the same time! The air was black with them, and they went back into only a small number of the hives. He candidly admitted that it made him so sick he went straight to bed. I think he afterward did something to even them up.

Digitized by Google

CRITIC TAYLOR comes up smiling in *Review* with a new argument in favor of boiling foul-broody honey only 15 minutes. The specific gravity of honey is nearly a half more than that of water, hence when you boil honey you make it a lot hotter than 212°. I don't know the proper reply to that, so I've taken to the fence, and am looking for a soft spot to alight beside Bro. Taylor. Gather up your duds, Ernest, and come along. But I wish some one would tell us just how hot boiling honey is. [See editorials.—ED.]

EDITOR HUTCHINSON and C. P. Dadant are at loggerheads as to the expense of queens in spring. One says they are the *least* expensive part of a colony, the other says they are the *most* expensive part. Hutchinson says when bees swarm they build a lot of queen-cells, and "the building of these cells and the feeding of the embryo queens cost the bees some labor, and that is all that queens cost the regular honey-producer." That wouldn't make them cost 10 cts. each; but getting them fertilized and keeping them through till spring will make them cost 90 cts. more.

A HEDGE OF EVERGREENS is a fine thing to slow up the wind in winter, but you must remember that it will also slow up a breeze in summer, so that, with a dense hedge on east and west side, combs may melt down in a hive in dense shade. [Yes, it is true that, while evergreens make most excellent windbreaks, they produce almost a dead calm under a hot pouring sun in summer. Our apiarists have often complained about its being so "dreadfully hot" in our apiary in the summer, and I suppose it is because of those same evergreens that are so useful in winter but so useless in summer.—ED.]

I'M ASHAMED TO SAY I had forgotten that Cheshire gives what is probably the true cause of the blackening of brood combs, that is the residua of the bowels being "plastered outside the exuvium, within the cell-wall." As to darkening in supers, J. E. Crane is sound, and we may as well dismiss the dirty-foot business entirely. But I do think that bees add dark material to the *outside* of white cappings when left long enough. [I believe that Crane and Cheshire are, on the whole, correct, although I am inclined to the opinion that propolis has probably as much or more to do with discoloring honey than pollen.—ED]

I'D LIKE TO SEE Doolittle use tin separators 20 years without cleaning, where I live. He'd have to enlarge his supers. [Yes, yes. Dr. Miller, if my memory serve me correctly, has more real propolis to the square foot than Doolittle has to the square yard. My comparison may not be accurate, but I know there is a vast difference. In the State of New York, fixed or self-spacing frames are used very largely; in Illinois, very sparingly, at least in the northern part of the State. There can be no question but that, in this matter, locality does have a great deal to do with one's ideas and real practice.—ED.]

SOME MAY HAVE a misunderstanding from the statement, p. 176, that Ontario has proportionately less foul brood than any other country. Foul brood has just started in Belgium, if I am rightly informed, and I think there are countries where foul brood is unknown to bee-keepers. [I hope there are many countries and States where foul brood is unknown. It begins to look as if, next season, there would be a good demand for bees, owing to the fact that there will be rather heavier winter losses this year than last. Sending bees in the form of nuclei is very liable to carry foul brood, if those nuclei come from a locality that has been or is infected with the disease. —ED.]

"THE SIDES of the cells are porous, also the cappings," says James Cormac, page 180. Brood-cappings are porous, cappings of honey less so, Cheshire finding about one cell in 16 not porous; but he found no porosity whatever in the walls of cells. [I think we may safely say that the cappings of both brood-cells and honey-cells are porous. One does not need to consult any authority to prove that; but if one will take a strong glass, and inspect the sides of honey or brood cells he will see that they seem to be more dense, and are probably impervious to air. We know that honey ripens somewhat after it is capped over, and there is no way it could ripen unless the cappings were porous.—ED.]

"BEST THING in the line of an interview I ever heard from a bee-paper," said my auditor when I finished reading the Root-Crane interview, p, 169. [The Crane part of it was all right. Some little time ago, when I had that little chat (interview) with Chalon Fowls and H. R. Boardman, I regretted that we did not have our stenographer on hand to take down in permanent form the valuable suggestions that were thrown out. It is my purpose to introduce this feature in the future as often as conditions will permit; so that those of our bee-keeping friends who come here must not be surprised if they are put through a course of questions—not so much to see how much they know, but to pump out of their wells of knowledge as much as they are willing to give.—ED.]

"YOUR CHOICE for 16 cts.," marked over a dozen sections (p. 168) will work all right if sections weigh alike; but if there's a difference of several ounces between the heaviest and lightest, won't the last go a little slow? [Mr. S. A. Niver, who is an advocate of selling honey by the piece, grades his honey, if I am not mistaken, both by appearance and weight. I think that he told me he could gauge his honey to the half-ounce by merely picking it up and looking at it and setting it in its proper grade. That takes practice. When honey is sold by the piece, every section box is very nearly an average of every other one in that same case; if it is not, then the customer will soon demand to buy by weight. I do not remember whether Mr. Niver is the one or not; but some one has cases of full-weight fancies and light weight; also full cases of full weight No. 1 and light weight No. 1, and so on. The light weights are sold to one set of customers, and the heavy weights to another.—ED.]

Digitized by Google

RAMBLER springs a tough conundrum in *Review*. Why is it that, when you're at work near the apiary, only two or three bees will persistently pester you when there might as well be a thousand? I don't know. But when he says, "If you knock all of them down it will not take five minutes for their places to be filled by another two or three," I demur. We eat our dinner under a certain tree in the Hastings apiary, and when we've batted the two to six scolding bees, the *rule* is that we can eat our dinners in peace. [With me it has worked both ways. Sometimes after killing off the two or three that seem to delight in making one crosseyed, that has ended all further annoyance. Then at other times it has seemed as if every time I struck one, another would take its place—if not at once, shortly after. As a general rule I find it pays, however, to kill off these teasers; for when they once get into this habit of following one about the yard, those very same bees, if not killed, will keep it up for days. I remember quite distinctly one of these bees that had defective wings. Its hum was quite characteristic; and after two or three days of real annoyance I remember saying, "There comes back that little rascal again. I will fix him." I did fix him, and straightway that peculiar hum or whirr stopped. You see it was more natural to say I would "fix him" than to "fix it" or "fix her."—ED]

"The March winds roar around our door,"
The bees say, quite demure;
"It shakes my *frame*," says one scared drone,
"Yet our *foundation's* sure."

AMERICAN BEE JOURNAL.

The first and second items on the second column of page 168, previous issue, should have been credited to the *Amer. Bee Journal* and not to the *Bee-keepers' Review*.

Mr. McNay says bee-keepers should demand an advance on honey sent to commission men, otherwise the honey will usually be put in the back part of the warehouse, and will be the last to be sold.

In speaking of the relative qualities of honey gathered by blacks and Italians, Mr. Edward Bevins, of Iowa, says he does not "question the fact of the better taste of the product of Italian bees. . . But that this superiority is present at all times and under all circumstances may well be questioned."

C. P. Dadant thinks it beneficial to let bees fly out on warm days, to avoid constipation. He does not favor excessive ventilation of hives, such as results from having the bottom of the hive removed; says it is like sleeping in a room with the window open in the winter. Probably "locality" will cut quite a figure in this matter.

In the issue for March 2 Mr. J. H. Martin furnishes a full description, with illustrations, of the California blue-gum and red-gum trees of that State. The blue gum (eucalyptus) is called the giant honey-producer. Mr. Martin says he has not seen a larger tree in America that secretes honey. Mr. M. has known the blue gum to bloom continuously from December till May and June. The honey from it is very dark, and aromatic in flavor. The tree grows very fast.

Mr. William Stolley, of Nebraska, gives a remarkably interesting talk on sweet clover—how to raise it, use it, and control its growth. Among many good points he makes I note the following: "In Nebraska it will furnish most excellent bee-pasture up to the time when frost kills all vegetation, and sweet clover is the very last to succumb. For early spring pasturing of cattle, particularly milch cows, there is nothing better than sweet clover." "It runs out all noxious weeds, perfumes the air, and feeds the bees." "A public road, well and evenly seeded with melilot, but the growth of it properly checked at the proper time, is a thing of great beauty, and there is nothing bad about it, but, instead, it furnishes a bee-ranch hard to beat." Mr. Stolley admits, however, that it is objectionable on original prairie-grass land which is to be utilized as hay land. It would be a good thing if the whole article could be printed in every agricultural paper in the country.

O. O. Poppleton speaks of the insect pests of Cuba. It makes us doubt what the poet said of these tropical countries—

"——every prospect pleases,
And naught but man is vile."

One of the "vile" things they have there is the mosquito; but these insects are not so bad as in Florida, are easily scared away, and can be kept away at night by the use of screens. The flea is to be found in Cuba in all his glory. Mr. P. says: "The more we kept away from any place where any kind of animal was kept, the less we were troubled with them." Then comes the chigoe, a black flea, so small as to be almost invisible. "These fellows burrow just under the skin, usually at the side of one of the toe-nails, and then proceed to grow into a bag full of eggs. I think that the abdomen of the insect itself distends as the eggs grow in size. The first that one knows of their presence is a peculiar itching, and an examination will show what looks like a white fester under the skin. A novice will open the supposed fester, squeeze out the eggs, and, if wise, drop in some kerosene to kill the insect and such eggs as will still remain. But the right thing to do is to take a pin, and, by being very careful, separate the entire egg-sac, without breaking it, from the flesh." Scorpions are plentiful in Cuba. Empty hives are a favorite place for them. Mr. P. says he has been stung by them only once. He thinks

Digitized by Google

the sting is not much more severe than that of a bee. See Mr. Somerford's letter in another column.

AMERICAN BEE-KEEPER.

A Pennsylvania writer says not a honey-bee could be seen on a field of crimson clover of his last year, but it was alive with bumble-bees.

Seven views of comb built by Carniolan bees are given, from the Ontario Agricultural College, R. F. Holtermann experimentalist. They are built, apparently, in brood-combs, L. size, and are quite as irregular in outline as an ordinary washing hanging on the line. They resemble a lot of smaller combs joined together in a jumbled-up mess. The editor thinks the average Carniolan colony would be ashamed of them.

In regard to nectar secretion, Fr. Greiner maintains, with every show of reason, that the same honey-plants are differently affected by different climates and localities. He says the cherry blossoms as well in York State as anywhere, but his bees seldom if ever get any honey from it, while in Virginia the same kind of trees yield honey freely. In one of Rambler's letters he speaks of the cherry-trees of Oregon as being a great place for bee-men. I am confident that around here they are of no value for honey. Watch our Apr. 15th issue.

G. M. Doolittle goes over the subject of fruit-bloom fertilization in a very thorough manner. I think I have never before seen so much on that theme, within the same compass. It is a real mine of information. I have just read an article in a French bee-journal, however, saying that bees have nothing to do with fruit-fertilization. Perhaps not, at all times, on the principle, as the little boy said, that "salt is what makes potatoes taste bad when you don't put any on."

A fine view of the apiary of Mr. A. A. Goetting, of El Casco, Cal., is given; also a picture of Mr. G. himself. He tried Cyprians in California, but had to give them up, as their jokes were too pointed. To get rid of a laying worker he tells us to "carry the hive a short distance from the apiary. Place upon the stand an empty hive, and in it put a frame of brood and eggs from a good colony. Shake all the bees off from the combs; replace the combs in the new hive on the old stand, and it is done."

A. E. Manum continues his articles on the size of hives. He concludes as follows: "In a locality with a honey-flow of long duration, and 'the bees run wholly for comb honey, and by a person who can give them close attention at all seasons, and also where an increase is desired, I would favor the small hive. But if no increase is wanted, and the location gives but a short honey season, and the feeding is to be avoided, I would by all means favor the large hive." Mr. Manum's wide experience gives weight to what he says.

"HE."

BY EUGENE SECOR.

[*Note.*—See GLEANINGS for Feb. 1, pages 80, 81.]

We hear a good deal of talk nowadays
  Concerning the sex that gathers our honey;
One man of letters writes, and boldy says,
  That she's a *he* (now, doesn't that sound funny?);
That *he's* the one that works, and always pays
  Our little bills when we're in need of money.
He cites a number of poets to show
That insects are called males, and *she* must go.

He says, and maintains, that if she's *not* he,
  She ought to be *it* according to rules
Evolved and explained so plainly that we,
  The laity, who, though innocent fools,
And Zaccheus-like (so curious to see),
  May learn about "functions" outside of schools.
But he failed to explain why the functionless steer
Is known as a *male* every day in the year.

Of course, it's quite plain to most of us *men*
  Why too much credit should never be given
To *female* importance; if it's *she*, why, then,
  As sure as the stars adorn the blue heaven,
The woman will claim again and again
  That *she's* the *factotum*, and not merely leaven.
It will never do to have it get out
That *females* are *workers* and bring things about.

When Nature exhibits some wonderful feat
  Performed by what *we* style the weaker sex,
'Tis lucky to have an old bach to cheat
  The dear woman out of th' possible reflex
By fooling the same in poetry sweet,
  By argument too, and logic complex.
The *masculine* gender's the best every time,
Because it is found *quite often in rhyme.*

Of all the wild fads now running round loose,
  The effort to make our speech very plain
Is faddest of all. A gander's a *goose;*
  But why admit that? it's simply insane—
'Tis running our necks in a feminine noose,
  So *gander's* the word that ought to remain,
Because, don't you see? some women will say,
"A goose ain't a gander, by a long way."

From this time on, then, *it* ought to be *he*
  Whenever we speak of the miscalled neuter.
Let's keep the old ruts, and not bend the knee
  To modern improvements, though it does seem cuter.
Young folks are too smart in this land of the free,
  And get too far from the time-honored tutor.
Let's teach this doctrine wherever we can:
The old-time angel was *always a man.*

Digitized by Google

HE OR SHE.

Its Use in Different Languages.

BY F. GREINER.

It has been the custom of all the English-speaking people to give the worker-bee the masculine pronoun *he*. I am not very certain that there has been any particular reason for this. No language, that I have gotten a slight inkling of, seems to be very consistent in conceding any particular gender to the things of this earth. How, for instance, may we account for using the masculine pronoun *he* when speaking of the sun, but the feminine, *she*, when speaking of the moon, especially when considering that the German has it right the opposite, while the other languages, again, like Latin, French, and Greek, have it the same as the English?

How can we account for it, that in the German we give the drone the pronoun *she*, but not so in the English? to the worker-bee the feminine *she*, yet not so in the English? Nearly all of us remember when the queen used to be called "king;" among the Germans, *Koenig* [king], and *Weiser* (*l*) [leader], with, of course, the masculine gender. This older usage, though, has substantially gone out of practice in a measure, so to speak, as the people have gained in knowledge.

The explanation of why there are so many inconsistencies in our languages lies, it seems to me, right here. Languages were made up greatly by ignorant, uneducated people. Language was first, then education. Can it then be wondered at that so many of these inconsistencies crept in—inconsistencies that now cause the student so much hard study? It seems to me that it is only a move in the right direction when we now try to rectify some of the greatest inconsistencies and blunders, wherever it may be done without much inconvenience.

I certainly was greatly pleased when the editor of GLEANINGS first started the reform in our bee-literature by giving the worker the feminine gender, to which it is rightfully entitled. As a German I had been used to styling the worker as *she*, as mentioned before, and I could not become reconciled to giving it the masculine pronoun *he* when learning the English language.

Mr. Hasty, in the December *Bee-keepers' Review*, expresses his opinion in this matter. He thinks the effort in behalf of this reform is born by a spirit of conceit, we thinking of ourselves as possessing greater knowledge than the laity; and it is not impossible that this may be true.

Further on Mr. Hasty tries to represent the worker from the "absolute-fact standpoint," and says the worker-bee is anatomically a female, but functionally a neuter, and should properly carry the pronoun *it*, etc. I grant that the mission of the worker has thus been described, and is looked upon by almost all, even the scientists. But what are the facts in the case? What are the functions of the worker? A worker may lay eggs which may produce bees (male). Workers in a body may, by a sort of incubation, hatch eggs. Workers may secrete milk, so to speak, and are able to (one might say) suckle the young. The workers do not only secrete the milk, but milk themselves for the benefit of the young, if I may be allowed to express the process in these words. These are the most prominent faculties the workers possess.

No doubt Mr. Hasty considers the queen a perfect female. Indeed, the queen has become the proud owner of this distinguished title, "perfect female of the hive;" but is she justified in holding it? What qualities do we generally look for in a perfect female? Mr. Hasty is growing up a young bovine, a heifer calf, by the name of Dinah. The mother cow did not only give birth to this calf, but she provides for it proper food, and suckles it. So the here well-defined characteristics of this perfect female cow are, 1, to give birth; 2, to furnish food by secretion. The queen can well perform the first of the two; but further she can do nothing to keep her race from becoming extinct; the worker must come to the rescue; the worker performs the other half of the work of the true female. If I am not very much mistaken, then the worker has a right to the name "female," perhaps fully as much as the queen; but, as it appears, neither one is a perfect female; the two together make the ring complete; and since the one carries the pronoun *she* undisputedly, the other might as well. When the time comes that the relative missions of queen and worker are not only fully understood, but to each the credit given that to each belongs, then we shall hear no more of the queen being the only perfectly developed female, and the worker being neuter, but each will be addressed as it properly should — Mrs. Queen and Mrs. Worker.

Naples, N. Y., Jan. 3.

HE, SHE, OR IT.

A Little Advice to the Editor.

They are having a good deal of discussion in GLEANINGS about the proper pronoun to use in connection with a worker-bee, and the editor says in a note that he has associated with *he* smartness and wickedness, and with *she* softness and goodness. Here is just where the trouble lies. Man, the male, has always egotistically assumed that *he* was the superior of the rest of creation, women included, and the world has been run with the *he*, *he* idea uppermost, until *he* has left *she* out of almost every thing. This was especially true in Bible times. Did it ever occur to these male egotists that it is the female germ which is first in the order of creation? In nature it is the male cell that parts with its individuality when a new being is introduced into this time world. Whatever custom and tradition may say, "man is born of woman," according to nature, and this places woman first. Man smarter than a woman? Not much! We have seen women who could peel the bark off a hickory

Digitized by Google

sapling, the equal of any male gender. Better continue to say *she*, young man, when you speak of a worker-bee; this is the age of "woman's rights," and you may wish you had if you do not. *She* is not so "soft and good" as she might be when you get her aroused; for illustration, a *she*, *it*, or *him*, which shall I say?—bee, a neuter, if you please. —*The Modern Farmer and Bee-keeper, by E. T. Abbott.*

TRAVEL-STAIN.

The Whole Question Reviewed and Restated; Getting the Game Holed, and then Digging it Out; a Valuable Article.

BY J. E. CRANE.

In GLEANINGS for Feb. 1 Dr. Miller says, "J. E. Crane's article, page 42, is entirely correct; but it only shifts the question one step farther back — is the black carried up from the brood-nest into the super caused by travel-stain, or what is it?" to which the editor adds, "I do not believe we can tell where the black does come from — perhaps sometimes from out of the hives; but I suppose that, in the majority of cases, it is chunks of propolis."

Now, then, let us see if we have got our game "holed," as the hunters say, before we proceed to dig it out. But first let us take a short lesson in colors.

I suppose we are all familiar with what is said of the diamond and lampblack—both the same chemically, yet one the purest white while the other is the purest black. Whence the difference? Just a little different arrangement of particles, we are told.

Take another illustration. The egg from which a honey-bee is hatched looks like a minute elongated pearl. With the heat of the hive it soon hatches, and is fed by nurse-bees a white substance like milk, and in a few days it becomes a large larva nearly white, when it is sealed up; and in a few days more, if we remove the cappings, we shall find a nearly mature bee almost as white as snow. A little later it may emerge from the cell as gray in color, and, after a few flights, its body is black, softened by a light-colored fuzz or numerous short hairs. Where did it get its color? Is it travel-stain? I think not.

I have introduced these illustrations to show how slight a change is required to change color, but hardly need them to prove the origin of the so-called "travel-stain," for the color is not black, but rather a reddish brown, or cinnamon, and evidently comes from some substance or substances of the same or similar color.

There are three or four sources from which it is derived, and it may be, in exceptional instances, more; viz., pollen, propolis, cocoons of young bees, and all of these mixed.

Pollen varies in color with the flowers from which it is gathered. It is often nearly white, and again a light yellow or dark yellow, or orange or pink, or red or brown, or it may be some shade of green.

What is propolis? I look in my Standard Dictionary and find that it is "bee-glue." Good! Some of us have been aware of that for some time. But what is bee-glue? It may be one of a dozen different things, or all combined, which the bees gather to stop up cracks and crevices, or smear or coat the inside of their hives, daub the inside of sections, or even the surplus combs or the brood-combs, or even for capping. This very afternoon a neighbor brought me some section honey to show me, and wondered if I could tell him what it was that made his combs look so colored, while the honey was white. I told him the combs were built late in the season, and propolis used in capping.

"Yes," he said, "they were built late;" and when I gave him a glass to look through he could see nothing but propolis to discolor his combs.

I believe all the coniferous trees furnish propolis in varying quantities and quality. I have found of late the butternut furnishes a good deal of a dark brown color. The northern poplars have long been noted for the production of this substance; but there is one variety, *Populus balsamifera*, that is the abomination of bee-keepers, so abundantly does it produce bee-glue. But bees gather it also from old bee-hives, or from slumgum that some careless neighbor has thrown out, or it may be from that thrown out of some hive by the bees, or perhaps they may get a full supply from the newly grafted orchard of my neighbor across the way, and be grafting wax with a little dirt. Now I believe we have ample evidence that our game is in its hole. Let us see if we can dig it out.

If we take a new colony with new combs we shall find the combs a pure white. The first intimation of color is in some cells partly filled with pollen. Later we shall find that every cell from which a young bee has emerged has lost its snowy whiteness. Indeed, we can tell every cell used for this purpose if even only one bee has hatched in it. The brown cocoon is left, and gives its color. Every succeeding bee that comes out leaves the cell darker until, in old combs, they look almost black.

But there are other processes going on that change slowly, perhaps, but surely, the color of the comb. Every cell in which pollen has been stored is likely to be changed in color, not the same as where brood was reared, but changed. The whiteness of virgin wax is gone, and in the place of it a dull yellow or brown. As honey becomes scarce the latter part of the season, and the bees cease to make wax, they will gather propolis and stick it about the mouth of cells, and perhaps give the lower edge of the comb a good coating of it also.

The following winter the bees gnaw down the combs more or less, and in spring gnaw out cells of pollen that may be coated with mold, or some of the combs that may also be colored with mold.

If the colony is strong, these chippings are picked up, mixed more or less, and used again to build comb or cap brood, and these

Digitized by Google

processes go on year after year, producing accumulations after a time that are a surprise when one attempts to "make beeswax," and finds but little more wax, or at least is unable to separate little more, than he would from a wasp's nest, but in its place slumgum.

Now, that bees are capable of shifting these accumulations, or a part of them, with more or less wax from one part of the hive to another, or from the brood-chamber to the super, is evident if we take a comb from a populous hive with old combs, in spring, while honey is scarce, and replace with an empty frame. We shall soon have a new comb in the place of the one removed; but how different from one made of virgin wax! In color we are at once reminded of "travel-stain," for the color is almost identical with that of the so-called travel-stain in boxes of surplus honey. It would be absurd to say that the bees had built this comb out of travel-stain, or even to suppose that they had built it of virgin wax, and changed its color so quickly by traveling over it, for the whole character and texture are different.

It seems evident that both pollen and propolis have become mixed with the wax and cocoons of old combs in a way to give them their dark color; and when wax is scarce they will be thinned down, and the extra used either in building new comb in the brood-chamber or when mingled with new wax used for finishing new combs in surplus boxes. Of course this is not always the case, for the color of the cappings may come from propolis alone, or, as is sometimes the case, from freshly gathered pollen.

It is not surprising that some should think it may come from the clustering of young bees on new comb, as suggested by Mr. Comeau, of Henryville, Quebec, as combs are likely to be stained most when young bees are hatching rapidly while but few larvæ are being sealed up; but this theory is contradicted by the fact that we often find our combs colored as fast as sealed—in fact, sealed with colored wax.

And now to recapitulate, I believe it may be safely stated:

1. That stained combs come sometimes, though rarely in this section, from pollen carried into the hives on the bodies of bees, which for some reason they have not made into pellets, as may be proved by examining the pollen and the stained combs.

2. By the use of freshly gathered propolis, or of minute particles of propolis gathered from the body of the hive or elsewhere, and mingled with cappings, and is very common, as may be proved by examining the cappings through a glass, or melting up a large quantity and observing the propolis that will separate.

3. The most frequent cause, perhaps, in this section, is the use, in capping of surplus combs, of impure wax from the brood-chamber, caused by the mingling with it of propolis, pollen, the cocoons of young bees, and, under some circumstances, it may be the excrements of worms or bees, or moldy combs, and often used first in the capping of brood, and, later, in the super.

[As this article is quite in line with the investigations of Cheshire, and quite agrees with some of the experiments of some of our best men, I think we may safely set it down that most of the propositions above elucidated are fairly well proven.—ED.]

CUBA.

Its Drawbacks, Troubles, and Privations; Fevers; Wax-moth; Fleas; Reptiles, etc.; a Very Interesting and Readable Article.

BY W. W. SOMERFORD.

"As I am anxious to learn all about Cuba in the way of honey-production" is a fair sample of the letters that are dropping in from prominent bee-men. I now have two before me from Mr. F. Danzenbaker, of hive fame, and also 20 winters' experience in Florida, with bees and oranges; and for a practical questioner he minutely fills the bill, and especially asks for "drawbacks," troubles, and "privations."

1. Is there danger from banditti?

There is not at present any danger from banditti, and never has been, except for the *very* rich man; and as bee-keepers don't class that way down in my country, I think a person can, as a general rule, if he chooses, sleep with his doors and windows open, except during the rainy season; then it's best to keep them shut, to keep out dampness, the chief cause of sickness in Cuba, and the only drawback to the bees to keep them from booming the year round. The rainy season, though, lasts generally three months, and rain, some *raw*, does not skip a day, during the 90 days. Then the bee-keeper has his patience tried, for some of his bees won't work in the rain, *especially if black;* and if he does not feed starvation is the result, though I have never yet seen or heard of a hive of Italians starving in Cuba during the rainiest times—times when it rained so much and so incessantly that every thing was soaked with dampness, so that bound books, even, were coated over with green mold in a non-leaky house, while grass grew green and tassled on top of the house.

2. Malaria, fevers, etc.

Cuba is not a malarious country. Moss does not even grow there on trees, as it does here south with us; and the verdict of the American population who have remained in Cuba for years is that it is healthy. It can not be otherwise, swept as it is by sea breezes almost continually, being so narrow.

3. Wax-moths, etc.

They are plentiful the year round, but they give the modern bee-keeper no more trouble in Cuba than here south, except in comb honey, and that should be shipped north before March, as the crop is harvested by that time. The moths come in November, December, January, and February, December and January being the best months for honey.

4. How is honey kept from getting thin?

The extracted honey is nearly always sold in February or March, before rain sets in.

Digitized by Google

5. What kind of poisonous reptiles lurk around the apiary?

No reptiles in Cuba that are poisonous that I know of, except water-moccasins; but they lurk only around ponds, or in the creeks, so they never bother in an apiary.

6. Are fleas bad?

I never saw the like anywhere—thousands of them. I have known natives to sleep entirely *nude*, to keep from carrying fleas to bed with them.

7. How many kinds of fleas?

Only one kind—the numerous kind.

8. Can they be escaped?

I have tried, and seen others try to escape them. I have even tried diluted phenol or carbolic acid, but to no avail. They wouldn't stay off a fellow.

9. Any ticks, chigoes (jiggers), or bedbugs?

No ticks, no bedbugs—no beds for them to stay in; cots are in common use in place of beds; but jiggers are numerous in some places—the kind that burrow into one's feet around the toe-nails, and cripple them up, especially when socks are not worn (native style), or "sockless Jerry" style; no red bugs of the southern type, that crawl all over a fellow and set him afire.

10. How about sand-flies and gnats?

We don't have sand-flies in Cuba—no sand on the island; but gnats are innumerable.

11. Do mosquito-bats or dragon-flies prey on the bees in Cuba? They ruin them at Miami, Fla., and no way to avoid them.

There can not be any in Cuba, as I have never known them to do any damage to bees, nor have I ever heard any complaint of them; and as I knew of a bee-keeper in Cuba increasing from 25 to 500 in one season I presume bees are not at all preyed upon by insects other than ants. Little black ants are very numerous at times, especially during the rainy season, and often cause weak colonies or nuclei to swarm out, as at that time they are easily discouraged, and often come out, leaving brood in as many as three frames, and well supplied with honey.

I see an article on page 124, Feb. 15th GLEANINGS, saying that Japanese bees work in the rain, and it might be that they are the bees for Cuba, especially during the rainy season. I should like to try them, anyway; for with blacks or Italians it is almost absolutely necessary to have sheds for the bees in order to carry them nicely through the wet months. Dr. Vieta, of Cienfuegos, Fred Somerford, and Fred Craycraft, of Havana Province, three of the most experienced bee-men in Cuba, say that sheds more than pay for themselves; besides, oh how delightful it is handling bees under sheds, no matter if it is raining three times a day for three months at a time! If a chap keeps dry he will feel all right, and sheds made with pole framing, and covered with palm leaves, last for five or ten years; besides, they are very cheap.

12. Do grapes grow well in Cuba?

Grapes and figs do splendidly—seem to be entirely at home in Cuba; and oranges—oh my! how they grow without even a particle of fertilizing! and vegetables such as onions, cabbage, tomatoes, and turnips, astonish one in the way of attaining size without the soil being fertilized a particle. But the *comb* honey from Cuba will in the future be the astonishing feature to the bee-keeper is my prediction.

Navasota, Texas, Feb. 23.

[So Cuba, then, is not a malaria-infested country, as we had been led to believe, from the fact that so many of our soldiers sickened and died there; but the fact that some of the best of Uncle Sam's men died of fevers in northern camps of the United States goes to show that Cuba ought not to be misjudged by the experience of the army. The Queen of the Antilles perhaps, then, is not nearly as bad as the headings above would seem to indicate.

As this article has proved to be so interesting and valuable, I hope friend Danzenbaker will fire another set of questions at Mr. Somerford. We are all anxious to know about that bee country that may some day be a serious competitor to the bee-keeping interests of the United States. I suspect that most of us do not want to believe that Cuban honey can compete with American. But if it can, the sooner we *know* it the better for us.—ED.]

BEE-KEEPING IN CUBA.

A New Field for the American Bee-keeper.

BY A. W. OSBURN'S SON.

It is but natural that all eyes should be turned toward the recent fields of conquest. We are all on the alert for an opportunity to swell our pocket-books. Cuba is known to be a great honey-producing country, from our large reports in former years; hence the unusually large inquiry at present on the subject. No doubt the bee-keeping world has often wondered where the writer of former days, A. W. Osburn, had gone to. He has been called home by the Master, leaving a son and daughter to mourn his loss. Out of deference to an indulgent father we have been living a very secluded life for the last two years; but as time heals, in a measure, the deepest wounds, so it is healing ours slowly, and probably the bee-world from now on will read from time to time sketches from the same old pen, but used by a much less gifted hand.

The American people are subject to what we might call "ambitious finers." Moreover, it is of a peculiar kind that is very contagious. Some absent-minded one sniffs the air, then runs and tells his neighbor that he has smelled gold, and knows where it is to be found. Then his neighbor tells his wife, and that is all that is necessary. Within twenty-four hours the whole neighborhood knows it and is packing up ready to start for the new eldorado. The recent Klondike stampede affords a good example of what I refer to. Thousands have starved to death, thousands more have gone down to a premature grave, and rest upon the fleecy bosom of some far-off and unknown Klondike mountain. So, to avoid any thing of this kind, let the wise man think

Digitized by Google

twice before he leaps across the stream and finds himself in a strange land which the devastating hand of war has tried to destroy; but the experienced resident knows that fire can go only surface deep. So it is with a view to shielding the bee-men, or at least those of them who expect to go to Cuba and pick up gold, that I have decided to write a little on the subject, hoping that, after they have read what I have to say on the subject, they will be able to decide which is best, for I shall set forth things just as they are, and not write for deception in order to further my interests.

First of all, the question is asked, Is there any money to be made by keeping bees in Cuba? I reply, yes, most assuredly there is—more, in fact, than in any other country I know of. Then, again, a thoughtless fellow asks, "Is it much work to manage bees there? I shouldn't think it would be, for you have no wintering to bother with." Well, I suppose he knows how many days there are in a year. If so, he knows just how many days' work he has got to do in a year in order to raise a *crop* of honey in Cuba. To all those who have the foolish idea in their heads that they can come to Cuba, and from 75 or 100 colonies take honey enough in a season or two to make them rich, I would say, drop that idea at once, and stay at home, for such will only be doomed to disappointment.

There is money to be made by raising honey here; but remember there is never a rose without a thorn. The larger the crop you raise, the more work you have. There is no season of rest for the bee-keeper in Cuba. The tropical sun shines and the flowers bloom the year round. Commencing with the first of March you have your young queens to raise as soon and as fast as you can. If your apiary contains 500 or 600 colonies, you have to raise 125 or 150 queens, get them to laying, and built up as soon as possible. By the first of May swarming is in full blast, and you will have no time to take a nap between swarms. Then between the first of May and the first of September the busy little moth will furnish you with ample employment, digging him loose from the corners of the hive and comb from Sept. 1 till Nov. 1, or sometimes the 10th. Feeding and preparing for the harvest will keep you on the jump till the first of April. Then you have got to step around as if you had coals of fire in your shoe; for when the weather is warm, and your 500 or 600 colonies get limbered up, if they are in ordinarily good trim they will bring honey in at the rate of from 2500 to 3000 lbs. a day; and if two men are going to handle this amount of honey every day for a month at a time they have got to get a move on them, and have a good backbone, especially if they throw it out by hand.

So the stranger can see by these few notes that there is no fun attached to bee-keeping in Cuba unless it is when he is making $125 a day as we did several times.

In my next letter I will describe some of the many drawbacks in Cuba; how to proceed to establish one of these large apiaries, and about what to expect the first year.

LATEST DEVELOPMENTS IN WEED FOUNDATION.

The R. L. Taylor Experiments; Wax in the Walls and Not in the Base, a Desideratum.

BY E. B. WEED.

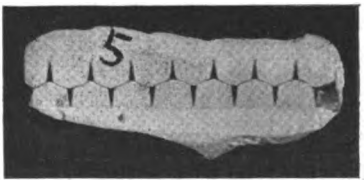
In the years 1893-'94 Hon. R. L. Taylor made some very interesting experiments with foundation, and published the results in the *Review* of December, 1893, and September and October, 1894. His object was to compare pressed (or Given) foundation, with a thin base and heavy wall, with the various other kinds then on the market.

The first year his experiments were conducted with sections of ordinary width; and although he found that the bees preferred some kinds of foundation to others, he also found that, after the preferred kinds had been drawn to about the thickness of a brood-comb, the bees then turned to the less acceptable foundation, and completed the sections filled with it about as soon as the others.

Mr. Taylor very ingeniously reasoned that if, in the next year's tests, he would use narrower sections, more decided results would be obtained, as the sections built on the preferred foundation would be better filled, and weigh more; so for his tests for 1894 he used sections measuring nine to the foot. This time the results obtained seemed quite decisive. In nearly every instance the Given foundation, weighing about 10 feet to the pound, with most of the wax in the walls, produced much heavier sections. For instance, tested with the Van Deusen, 14⅛ feet to the pound, an equal number of sections weighed 15¼ lbs. as against 9½ lbs. from the Van Deusen.

Mr. Taylor's conclusion was, "Heavy foundation has a decided advantage over light." He also made very careful measurements of the base of the combs built upon the different foundations, and found that, where the 10-ft. Given foundation had very thin bases, the base of the comb built from it was, in many instances, even lighter than natural comb, and very much lighter than any of the seven other kinds tested with it.* The cuts are reproductions of cross-sections of foundation, weighing respectively as many feet to the pound as the numbers indicate.

Figs. 5, 7, and 12 were made upon the same plates, with different thicknesses of sheeted



wax. Of course, No. 5 required a heavy pressure to form it, while Nos. 7 and 12 required much less; and if there is any virtue in press-

* See table on p. 295, *Bee-keepers' Review* for 1894.

Digitized by Google

ing wax lightly they should possess an advantage.

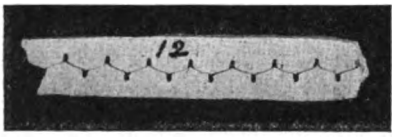


Fig. 6 is foundation from the same plates, 6 feet to the pound, and drawn out by the bees in January of this year.

The cut does not represent the walls fairly, as they are as light as any I have ever measured.

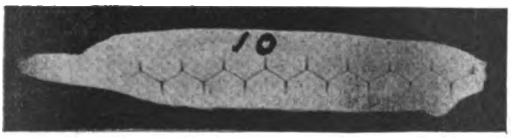
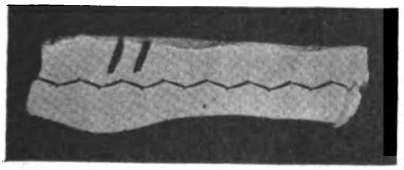


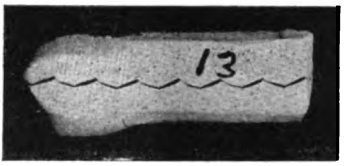
Fig. 10 is a poor illustration of the foundation we are now manufacturing.

Figs. 11 and 13 are regular light and extra light section, from The A. I. Root Co.'s stock.



I do not anticipate that, under *all* circumstances, this new foundation will give better results than the old style; but I am confident that it generally will.

To sum the whole matter up, if the foundation generally in use is perfect, and leaves absolutely nothing to be desired, then the new product and machine have no excuse for being. On the other hand, if the ideal foundation is not yet upon the market, we now have a means of producing it; and no-wall foundation 20 feet to the pound, or a deep-cell foundation of any



desired weight, are alike practicable I don't know "for sure" just what shape the ideal foundation will take; but when we agree on that point there is no question that it can be made.

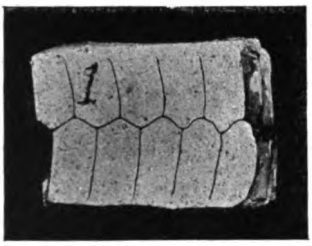
[I will explain that the plates above represent cross-sectional views taken from some of the latest samples of foundation made by Weed's new method, and from samples of ordinary foundation on the market. It would be impossible to cut cross-sections of wax without marring the edges. To prevent this, each piece is imbedded in plaster of Paris; then a razor-edged knife slices across the plaster, showing a perfect cross-section of the foundation, just as it leaves the plate. I know of no method that can show more exactly and more truthfully than this one the relative thicknesses of the bases and the walls of the various grades of foundation.

For some time—in fact, ever since Mr. Taylor, of the *Review*, gave the results of his experiments in 1893 and '4—I have been strongly of the opinion that what was needed was *less* wax in the *base* of our foundation, and *more* in the *walls*. As desirable as this thing seemed to be, it did not seem to be possible with ordinary rolls to put some of the surplus wax from the bases into the walls; and Mr. Taylor's experiments years ago showed that an old Given press, imperfect as it was, would produce a thinner base than rolls. I believe rolls *can* be made to produce thin bases, but they have not hitherto been built. I will say in this connection that a much thinner base can be secured on rolls by using thinner sheeted wax. Mr. Weed was of the opinion that a more perfect foundation could be made with plates. Accordingly, with that theory in mind he has gone ahead and made several sets, all of which were discarded except two. These gave a foundation with a base as thin as the bees make it. I have thought it was thinner, but Mr. Weed says not. It is necessary to have a certain amount of wax to stimulate the bees to comb-building; and that wax, as will be seen by Figs. 5, 7, and 12, is placed in the *walls* and not in the *bases*. The spurs sticking up show sectional views of the walls.

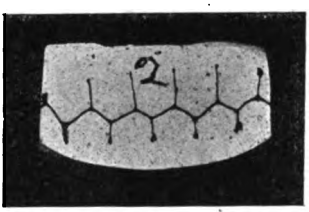
Going on this theory we find that, in nearly every case covering a period of two or three years, this large amount of wax in the wall seems to be thinned down to the thickness of

Digitized by Google

natural comb. No. 6 Fr. is comb built out from foundation made from plates; and before it was drawn out it looked very much like sample 7. The bees have apparently thickened the bases, because they were too thin at the start. Even now they are no thicker than those shown in 1 and 2, built wholly by the bees. They have made the walls so thin and gauze-like that they almost disappear. In fact, they can just be discerned.



This and former experiments show that we can stick as much wax as we like in the walls, for it will be thinned down; but we must be careful about getting too much in the bases; for while the bees *may* thin it there, they rarely do; and the excess of wax, therefore, in the bases, is simply so much waste product, and who pays for it? The bee-keeper and not the supply-dealer.



Probably the new foundation will not run, for the same superficial surface, any lighter than foundation commonly in use. It is found that, when foundation is too light, the bees either tear it down or else they are very slow to take hold of it. Although we have made extra-thin foundation for years, running about 12 or 13 feet to the pound, the bulk of the trade calls for ordinary thin, running 10 to 11 feet. A customer may order the extra-thin; but in nine cases out of ten, the following year he will order the next heavier grade; but, as I said, the ordinary 10 and 11 foot-to-the-pound surplus foundation now on the market has almost no wall, but a great surplus of wax in the base.

No. 11 is the ordinary thin super, running 11 feet to the pound; and No. 13, extra thin running 13 feet to the pound, and is like what is being turned out on rolls by foundation-makers, including ourselves. If these be drawn out into comb by the bees we shall have the same thick bases as there shown, without any apparent change. For instance, the samples shown in the accompanying figures 15 and 16 show first the foundation and then the comb after the bees have worked it out. It will be observed that in the above case the base is left almost untouched.

The second sample, and last one shown, is brood foundation worked out into comb, and regarding it the same rule holds true as in the case of that designed for the supers. We are indebted to the *Canadian Bee Journal* for these last two engravings. We have other cuts that show these things just as strongly,

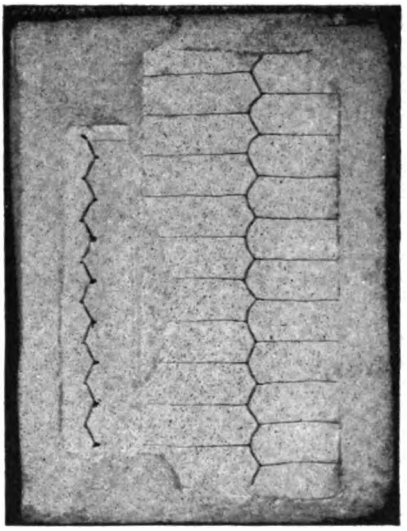


FIG. 15.

and personally I am thoroughly convinced that the foundation of the future should and will have thinner bases.

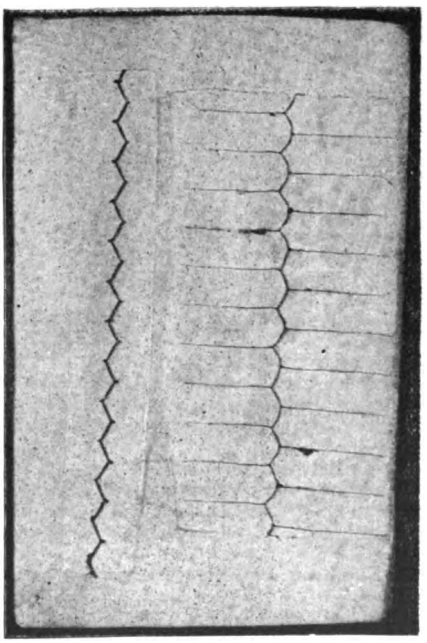


FIG. 16.

Mr. Weed has already made a set of small plates that make the right kind of foundation; and I also told him I thought he could make a set of *rolls* that would make the same article, or nearly that. He is skeptical about it, bu'

Digitized by Google

I insisted that he should try it, because there is so much to be gained in the economy of manufacture and consequent reduction in price to the bee-keeper, if rolls can be made to do the work.

As our readers will see, as per announcements elsewhere, we are prepared to furnish limited quantities of this new foundation, which we shall call "Weed's thin base." The sheets are cut and trimmed of a size to just fill a section 4¼; and the whole sheet, including the walls on both sides, is about ¼ inch thick. Sheets run 10 feet to the pound, and I confidently believe they will come the nearest to giving a "no-gob" foundation of any thing that was ever produced. I do not expect we shall be able to produce a better article than that made wholly by the bees; but if we can do as well we shall have reached our goal. In Figs. 1 and 2 I show you samples of natural-built combs, the bases of which you will see are about as heavy as that shown in Fig. 6.

TESTS OF FOUNDATION.

The Extra-thin Carries Off the Palm; an Interesting Series of Experiments.

BY JOHN M. MYERS.

[After I had prepared the matter above, the following came to hand.

The writer of it, instead of preferring ordinary thin, gives his preference to the extra-thin—not because bees take to it any better, but because it makes a better-eating comb honey. But his experiments show that the heavier grades of foundation are preferred by the bees. Now, then, *if* we can give them this same weight in a foundation that *will* give no gob in the comb honey, don't you see we work in harmony with both the bees and the eater? —ED.]

I used medium brood Weed process in the brood-chamber, full sheets, frames wired. I used this year thin and extra thin full sheets and bottom starters in sections. The thin foundation gave combs solidly filled and firmly fastened to the wood all around, and would safely stand shipping around the world. There is more wax in the comb than can be eaten by an expert, and be relished with the honey, which fact condemns it for me and my direct customers.

The extra thin had a severe test, as I left the sections on, week after week, waiting for honey to flow from the abundant bloom of the summer blossoms. But no honey was secreted.

The bees, for pastime, gnawed the corners and trampled down the bottom starter, and, as I thought, made sad havoc with a foundation too delicate for such a season. In many sections the cells were drawn out as far as the little ridge of wax would go, and they were in that condition when at last honey began coming in late in August. Some colonies worked on extra-thin filled sections solid to the wood, with a pophole in one or two corners; but in many sections none at all were left.

One colony of three-banders, worked on a small top starter last year, worked combs fastened at the top only, having a bee-space on two sides and the bottom. This year the same colony had the same fault, and tried to accomplish the same result on full-sheets and bottom starter of extra thin. This queen loses her head in the spring.

I received a small consignment of the deep-cell natural base drawn foundation and six pieces of double extra-thin, 2 inches by about 3⅞. I made up a super of thin, extra-thin, double extra-thin, and drawn or deep-cell foundation. I placed this super on a strong colony, and examined it every few days. It was late in June, and no honey was gathered until late in August. The bees filled the super with their own busy presence, and worked away at the various samples of assistance. The thin foundation was drawn out into neat shallow cells from top to bottom, and the top and bottom starters joined in many cases. The extra thin was eaten away at the corners, and the cells drawn a little, but not over the entire surface—mostly at or near the top. The double extra-thin foundation was much shorter, and rounded by the time honey came, but shallow cells were formed near the fastening. The cells of the drawn foundation were shortened back, and appeared to be of much the same depth as the cells on the thin or heaviest foundation. The double extra-thin and drawn had no bottom starters, while the thin and extra-thin had bottom starters of their own weight. Each section was marked, and they were mixed as much as possible. Honey started to flow about August 26. I did not note the progress of this super for four or five days; then I found the entire super nearly completed, and I placed another under it. The top one was finished complete, and the bottom one nearly finished, when the flow was over. I found, on examination, that if I had not marked the sections I could not have distinguished the thin and extra-thin by their appearance. The drawn and double extra-thin had the same fault as the lower half—ran into drone comb; but all were solid to the wood all around.

I found in the practical test on the table that the double extra thin was the nicest to eat. No center rib could be noticed in cutting through with a spoon, and honey and wax melted away in the mouth together. This was so of the upper third of the comb only. The two lower thirds, drone comb, was much like comb built on thin foundation. The drawn foundation was more delicate than drone comb —much like extra-thin. Extra-thin foundation could be eaten with pleasure, wax and all, and is so eaten by every one enjoying the hospitality of our table. The thin I can not enjoy, as I have to return cuds of wax to the plate or bone-dish.

Woodcliff, N. J., Nov. 26.

SWEET CLOVER.

Stick to sweet clover I have it growing on my farm. Cows eat it all right, so do sheep, and I kept my horses two weeks on it when mown and fed to them.

Arthur, Ill. J. T. LEE.

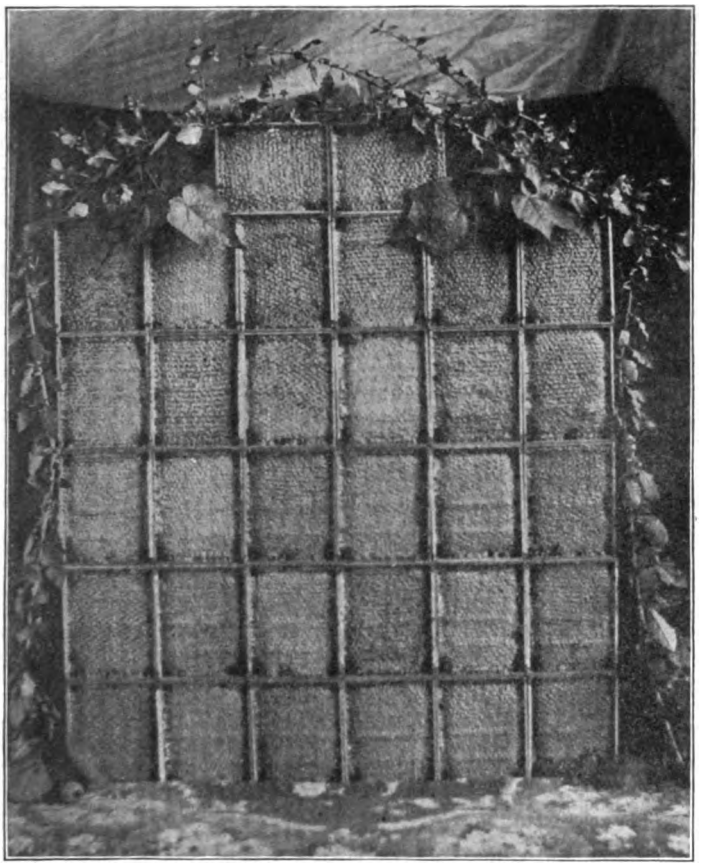
Digitized by Google

DANZENBAKER'S HONEY.

Was that Shown in the Journals Taken from Selected, or was it the Common Run?

BY F. DANZENBAKER.

Mr. Editor:—A prolific writer for the journals desires to know if the four plain 4x5 section of honey, Fig. 11, p. 920, GLEANINGS, Dec. 15, was raised by myself, or "selects," "from large lots of honey that I might have bought of others." For his information, as well as others', permit me to say they were not selected with a thought of your engraving them, as you know, but to demonstrate whether I could ship safely hundreds of miles by express from Hamilton, N. C., to Medina, O., half a dozen 4x5x1⅜-in. plain sections, in a Danz. shipping-case ⅛ in. thick weighing only 5 oz. The six sections were from the first super taken off. One-half of it was filled with Weed's drawn combs, the rest full sheets of foundation. I believe the four sections shown were the Weed drawn combs, as the bees started in them at once, and they were the first finished.



HONEY IN DANZENBAKER BEEWAY SECTIONS (OLD STYLE).

Mr. C. D. Duvall and myself were working together. We took off the first supers when partly finished, and divided them up to get bait combs for other supers. Finding 16 sections finished, fit to sell, in the first super, I sent six of them to you to show you the *defective* cells at the top of *all* the sections, *caused* by having the top slat of the 1898 fence $\frac{1}{16}$ in. *too high;* also that the cleats and openings between the slats *were correct*, and the fence was just right at the bottom, to have the sections evenly filled out all round to the wood.

In comparison with the four sections shown in Dec. 15th GLEANINGS, p. 920, Fig. 11, I submit a half-tone engraving from a photograph of 32 half-plain 4 x 5 x 7 to the foot Danz. sections, made at one time in a Danz. super (furnished with the 1897 N. fences), by W. W. Lathrop, of Bridgeport, Ct., who is an amateur beekeeper, having bought his first bee-hive in 1897.

He says: "These 32 sections were put on the hive in September, and taken off October 2," and he "had 172 sections of fall honey, all of it just as good." He had only three colonies in the spring.

The entire 32 sections are filled alike at top and bottom, showing that the 1897 fence was the correct width, although irregular spacing from $\frac{3}{16}$ to ⅜ inch caused a slight ridging of a few of the sections. While the 1898 fences were better spaced, and show *no ridges* on the surface of the honey, the top of the fence was $\frac{1}{16}$ inch *too high*, causing a row of open cells at the top of the sections. Happily this can be remedied by dressing off a trifle at the top of those now in use.

These faults have been corrected in the M. fences for 1899, and we believe all that are now going out are as nearly perfect as it is possible to make them. But the bees will tell.

Washington, D. C.

[I am glad to corroborate Mr. Danzenbaker's statement. The honey he refers to, and which was shown in our Dec. 15th issue, page 920, was placed on that page without any comment by myself. It was put in as an after-thought,

Digitized by Google

after the matter had been placed in type. When the honey was received in the first place, it came in the best of order; but it looked so nice that I had a photo of it taken, and this was half-toned, and the plate lay on my desk several months, perhaps, before it was used.

The honey here shown being made in old-style sections with old-style fences, some two years ago, does not show up as well as some of his later honey; and I would call attention to an obvious defect in it; namely, ridging across its faces. The fences with which this honey was produced were old-style, and the first that Mr. Danzenbaker got out. The slats in these were spaced ⅜ inch apart. We did not then know, as we now do, that closer spacing from $\frac{3}{16}$ to $\frac{3}{16}$ avoids almost entirely this ridging. But we never made any fences for our own hives with spaces wider than $\frac{3}{16}$, and most of them were spaced closer.—ED.]

SPRAYING FRUIT-TREES; HOW AND WHEN.

Where to Get Necessary Information in Regard to Spraying; a Matter of Value to the Fruit-grower and Bee-keeper alike.

J. W. ROUSE.

We notice that Bro. M. N. Simon, of Ohio, has a letter, saying that "the fruit-growers near him spray their fruit-trees while in bloom, thus destroying large numbers of his bees." We will say that the fruit-growers of his neighborhood very much need some missionary work among them for their own especial benfit as well as to help the bee-keepers. While we have no doubt that these fruit-growers are an intelligent people, yet spraying when fruit-trees are in bloom shows ignorance on this subject at least, as all well-informed horticulturists know that it does but very little good to spray while the bloom is out; and to do so destroys large numbers of the fruit-grower's necessary helps to successful growing of fruit. It would be too much in one article to show the necessity of insects (and bees are the best of all of them) to the successful growing of fruit; but what we have to say will be on spraying.

It is fully recognized in Missouri and in the West—in fact, everywhere, so far as we know—that the time to spray must be determined by what the spraying is intended for. If for fungus, it should be done before the tree comes in bloom; and, in some instances, even before the buds get started much. For the codling moth the spraying should be done after the bloom has fallen, as the moth does not deposit her eggs until the fruit is set; so to spray while the bloom is out would be too soon, and the work lost, besides poisoning the fruit-grower's helpers, the insects.

In the Missouri State Horticultural Society's report for 1893, 1895, and 1896, experiences are given as to when to spray; and in no instance is it advised to spray while bloom is out. The writer had the honor of offering a resolution at the meeting of the society at Marciline, Mo., in 1896, being there by request of the secretary to give a lecture on bee-keeping in relation to horticulture. The resolution was: "*Resolved*, That this society strongly advises fruit-growers, in spraying fruit-trees with poisonous insecticides, not to do so while the trees are in bloom, for the reason that at that time it practically does no good, but may be the cause of destroying, by poisoning, large numbers of our helpers in fruit-growing, particularly the honey-bees." This was unanimously adopted. Our horticulturists (many of whom are bee-keepers), recognizing the importance of bees in the successful growing of fruit, have cordial feelings toward bee-keepers; and for the past several years, in almost every one of their annual meetings, they have had either a paper or a bee-keeper to make a talk on bee-keeping. We would advise our readers who may be interested, to send their address to Cornell University, Ithaca, N. Y., and get Bulletin No. 101, entitled "The Spraying of Trees;" also Bulletin No. 86, "Spraying of Orchards;" and to U. S. Department of Agriculture, Washington, D. C., Farmers' Bulletin No. 7, "Spraying Fruits." These are all free. The best of all, that will give the most information as to when to spray and how many times is the Spray Calendar, by E. G. Godeman, issued in Feb., 1895, by Cornell University Agricultural Station. I. P. Roberts is the director. This calendar tells when to spray and what with; and in a long list, in every instance, either before or after the bloom has fallen. If any one wants to spray he should have these bulletins, especially the calendar, as we deem them of much value, being given from practical experience and experiments. We will not give any formulas, as that is another question.

Mexico, Mo.

FOUL BROOD GERMS.

May not Honey Boil in Separate Strata?

BY J. H. MARTIN.

Mr. Editor:—I am going to try to help you out on that proposition about boiling honey for the killing of foul-brood germs. You quote Messrs. Cowan, Taylor, and others as indorsing a ten-minutes' boil. On the other hand, Mr. Buchanan has made a failure at it, and would boil an hour or longer. Now, I can imagine that every one may be right. I will guarantee that Messrs. Cowan, Taylor, and others, boiled only a small amount as compared with Buchanan's 15 or 20 gallons.

Is it not a fact that liquids boil in successive strata? For instance, if there is a small amount of liquid in the bottom of a boiler it will all be thoroughly boiled in a few minutes; but fill the boiler with several gallons, and though it may seem to be boiling furiously there are successive strata, from the hottest at the bottom to the coolest at the top; and while foul-brood germs would be killed in the bottom stratum they would be alive in the upper stratum. It is the hot-air bubbles continuously rising to the surface that eventually give the whole mass of liquid a uniform tempera-

Digitized by Google

ture A large amount needs longer boiling; and where Mr. Buchanan made a mistake was in treating his many gallons as other parties had treated a gallon or less. I am sure that, if the proper temperature is gained in ten minutes, the germs will be killed; but to be on the safe side, boil a gallon in a large boiler ten minutes, twenty gallons an hour, fifty gallons three hours.

In the long broad shallow pan used for the evaporation of maple syrup we have an illustration of this law. There are fewer strata to heat than in a deep boiler, and the evaporation is more rapid. If foul-broody honey could be boiled in such a pan it would require no three hours to kill the germs.

Shermanton, Cal.

FOUL-BROOD GERMS.

What do we Mean by "Boiling"? Scientific Exactness.

BY PROF. C. F. HODGE.

Since foul brood has occurred in Worcester, I have naturally been interested in discussions of the subject that have appeared in GLEANINGS. In trying to make definite statements on such important matters, should we not be a little more exact about our fundamental facts? First: What is meant by "boiling"? If by "boiling" we mean putting any shaped vessel on any kind of fire and have it show a little ebolition in a certain spot for fifteen minutes, then surely "boiling for fifteen or forty-five minutes" may be insufficient to kill the germs. Stir such a vessel gently but thoroughly, and note how long it is before it begins to boil again. Where thorough boiling must be insured we must either stir the liquid continuously to heat all parts uniformly, or heat equally from all sides, as is done in steam sterilizers. "Dead spots," which have not been heated up to 212, may remain very much alive as to germs, and reinfect the whole mass. Of course, allowance must also be made for altitude above sea-level. This makes several degrees difference whether you boil on the coast or in the mountains; and these differences, when it comes to killing microbes, are apt to prove like the proverbial "inches" added to or subtracted from a man's nose.

A second fundamental is the condition of your bacilli when boiled. It is well known that, in the spore state, it is hard to kill many kinds of bacilli by boiling. It may be represented by the difference between killing a plant and a seed by boiling. The practice in laboratories is thus to boil, say, for fifteen minutes, twice or even three times on successive days. Boiling the first time kills all the growing bacilli, and starts the spores to sprouting. By the next day they have not had time to germinate and form spores again, so that the second boiling kills every thing that has started, generally every thing in the liquid. But since some of the spores are slower than others in germinating, and to make assurance doubly sure, it is the common practice in bacteriological laboratories to boil for a few minutes on three successive days. Since *Bacillus alvei* does form spores, the most rigorous treatment should be adopted; and until the resistance to boiling of the spores of *Bacillus alvei* has been more accurately determined than at present, I would not risk any thing short of boiling for fifteen minutes, with thorough stirring, on three successive days.

I should like to know where foul brood comes from, apart from infected hives. Is there not some *wild* insect or plant source?

Worcester, Mass., Jan. 27.

[Both of these communications—the one by J. H. Martin and the other by Prof. Hodge—go to show how a few minutes' boiling might not kill the spores of foul brood. It is well known that, when thicker liquids are boiled, the ebullition is apt to be confined to some particular spot; and to keep it from burning, frequent stirring is necessary. I well remember how my grandfather used to boil down sap into maple syrup, and how it used to be my job to stand with a stick and stir, and keep stirring, so the syrup would not burn.

I have just been consulting an article by Thos. Wm. Cowan, who, in speaking of spores, says:

> The spores also possess the power of enduring adverse influences of various kinds without injury to their vitality, so far as germinating is concerned, even if subjected to influences fatal to bacilli themselves. The latter are destroyed at the temperature of boiling water, while the spore apparently suffers no damage at that temperature.

This is quite in line with what is said by Prof. Hodge above. Mr. Taylor, it seems to me, does not consider that to kill *spores* is much more difficult than to kill the actual growing germ life itself. As long as there is room for doubt, one takes upon himself a grave responsibility when he says that a few minutes' boiling of infected honey is sufficient to sterilize it; and I have shown elsewhere that the boiling-point of honey is not so very much higher than that of water. Until we *know* more about the question of resistance of spores to acids or to heat, I for one will not recommend any one to boil honey less than three hours.—ED.]

BACILLUS ALVEI.

Bad Advice; the Importance of Making Sure Whether One has Foul Brood or Not.

BY W. A. H. GILSTRAP.

In 1897 my attention was called to an apiary near Fresno, which was diseased. The owner of the bees, Mr. Andrew Jackson, said it was what Root's A B C book calls foul brood, although Prof. ———, one of the leading entomologists of the country, had said that it was not foul brood; and Mr. ———, one of the recognized authorities on bees in this valley, had told Mr. Jackson that "bees run to extracted honey in this warm climate will get well of foul brood of their own accord." This is the way it looked June 1st.

Digitized by Google

A lot of empty hives in the honey-house looked as if they had seen service, and I asked Mr. Jackson about them.

"Oh, yes! these all had bees in when this foul brood made its appearance. Had I known what was the matter at first I should have had 300 colonies by this time."

"You had about 85 colonies, didn't you?"

"Yes; about 100 at one time."

"When did you discover they had foul brood?"

"In 1893 I saw there was something wrong. Prof. ——— said it was not foul brood. Then Mr. ——— said foul brood could not live in this climate when the honey is extracted, so I was ruined before I knew the real cause. Let's go out to the apiary."

The first hive opened had a dark-brown sediment deposited on the alighting-board. The bees seemed to have suffered greater mortality than the brood. The few remaining bees seemed to be in fair spirits. Eggs were being laid in very irregular order. Perhaps one-tenth of the brood had pin-holes, sometimes near the center of the cell, and sometimes near the edge, of various forms and sizes; but the term pin-hole would describe them as well as any name, perhaps. The contents ranged from yellow to black, and had the usual ropy consistency. A few cells had fine coffee-grounds (spores). Some cells in all stages were without perforations.

Of the 31 colonies there, 17 were condemned early in August by the newly appointed Inspector of apiaries. Late in September the bees were in about the same condition, apparently, except that fewer diseased larvæ were visible. Perhaps it was because the malady was generally in the spore state, and the spores were covered with honey.

So much blundering, and more that I might mention, has convinced me that, to *know* of the presence of foul brood, it is far safer to see the offending organisms with a microscope. I am convinced that, in our dry climate, the odor is not nearly so pronounced as elsewhere.

How many times must a glass magnify to reveal *Bacillus alvei?* In reply to the above, a celebrated scientist and apiarist said a one-fourth objective would do if the brood was stained. Having something definite, my next move was to ask an enterprising optician the price of such an instrument. He explained that an objective was part of a microscope, as tugs are of harness; but he could not tell me what was needed, and referred me to a local scientist with a $2000 library, who referred me back to the optician.

Mr. Cowan could certainly tell; but I would about as soon go to bed without supper as to ask him. Cheshire discovered the spores with a 500-diameter magnifier; but the catalogs don't say how many times their glasses magnify. The Rootville folks certainly "don't know" or they would say so in their catalog, giving price and general description, otherwise I would ask them.

Many people still believe that a dry climate and honey-extractor are the only medicines needed to cure *Bacillus alvei*. Mr. Jackson is not in that list. As the disorder is not stamped out yet, some others may take his view.

Grayson, Cal., Jan. 11.

[I wish you had told the name of the professor who gave that bad advice. As it now stands, one would infer that it is our own Prof. Cook, and I can not believe that he would be so careless or so mistaken as to say that one did not have foul brood in his apiary when he did. My advice, when samples have been submitted to me, has been this: If I am doubtful, I recommend treatment for foul brood just the same as if I were sure it was the real disease.

I can not think it is necessary to have a microscope to determine whether one has foul brood or not. A person who is inexperienced in handling such an instrument would be more likely to make an incorrect diagnosis than if he trusted to his simple unaided eye or nose.

With regard to microscopes, I might say that I am not without some experience. I used one so much that I fear that is one reason why I have to wear glasses now. In fact, I spent so much time with my microscope that I almost neglected my regular school studies; but at that time the appearance of foul brood was hardly known under the microscope; and although I have since seen it, I would not, with all the experience I have had, be prepared to say that I could surely identify it if I saw it under the field of the objective.

Speaking about microscopes, one can hardly get a good one short of forty or fifty dollars —one that would be suitable for looking at foul-brood germs. I have the impression that a ¼ objective may be used, but a $\frac{1}{12}$ lens I think would be better. A good objective might cost $25 or $30; and from that on one can go as high as he has a mind to pay. Unless one has spent years in the study of the minute forms of life, he had better let the microscope alone. But let me tell you I never enjoyed any study more than that of microscopy.—ED.]

RAMBLE 163.

Two is Company, Three is None; How Bill Greene was Quite Undone.

BY RAMBLER.

As I wheeled along to Medford I was favorably impressed with this portion of Oregon. It is a fine dairy country. The well-built nicely painted farmhouses, the large barns, the contour of the country, and the herds of dairy cattle feeding on a thousand hills, reminded me strongly of my native New York State. If we could drop a portion of this (Jackson) county down in a dairy section in New York, and remove a like chunk from New York for the time being, the people would hardly know the difference. It seemed to me that the people were committing a very unreasonable and wicked thing to complain as they did of hard times. While in Southern California the dry season had all things in its grip, and there was some reason

Digitized by Google

for complaint, here there was plenty of moisture and prosperity, the people were well clothed, appeared cheerful, and were happily going to and returning from town in their fine chaises.

Along with the occasional vehicle I met what appeared in the distance to be an emigrant wagon, or one of those large wagons with a white canvas cover, or what used to be white, for its pristine whiteness was now grimed with the dust of much travel. While I was not giving much attention to it, but more anxious to guide my own vehicle past it in the sand, what was my astonishment to have the occupant shout, "Hello there, Rambler!"

I dropped off my wheel as if I'd been shot. "Well, well! Bill Greene, as I live!" I exclaimed; "where in under the sun have you been? How did you get here, any way?"

"Why, don't you see? Two good cayuses and a wagon. You see I am doing a little rambling as well as yourself."

Mr. Greene had formerly been a bee-keeper in Southern California. Not being satisfied with that portion of the country he had been shifting from one locality to another; and, still evidently not satisfied, he was now on his way south to spend his winter in some portion of California.

Mr. Greene was a natural born trader, and had picked up quite a number of cases of honey somewhere in his travels, and was peddling it as he passed through the country, or, as he remarked, "supplying the home demand." When I first became acquainted with Mr. Greene he was a happy bachelor living in a tent not far from his apiary; and though he was always gentlemanly and respectful in language and demeanor toward the fair sex, he was so outspoken and firm respecting married life that I always considered him an out-and-out orthodox hard-shell bachelor.

"Well," said I, "Bill Greene, what a pity we are traveling in opposite directions. If we bachelors could travel together we might have more enjoyment out of the country."

"That is so," said he, in an abstracted way. "But, Rambler, you had better return with us." (When he said *us* I thought he meant himself and horses.)

"No, Bill, I can't do that. I am bound for Seattle."

"But, Mr. Rambler, you are going into a rainy country. I venture it is raining like fury there now."

"Can't help it, Bill; I'm going to Seattle, if it rains pitchforks."

"But think of the mud, Mr. Rambler, and you with a wheel."

"Hang the mud, Bill; I'll go to Seattle if it is knee-deep."

"But think again, Mr. Rambler; you will have to pass through Portland, and the city is full of all sorts of unmarried ladies."

"My dear Bill, you worry me; but I'm going to Seattle, if I have to spoil ten miles of apron-strings. And now as you have been so kind as to warn me I will try to return the compliment. When you get to Klamathon you must beware of an unmarried woman there. She is a spiritualist, and is looking out for her affinity; and the trouble is, Bill, whenever a handsome man like you or me comes along she tries to bamboozle him into being her affinity. Now, Bill, don't you be bamboozled, don't get tangled up in apron-strings. You see, Bill, there is danger of getting unequally yoked, as the Bible says, and then it will be see-saw see-saw all the rest of your life, and you will be very unhappy."

While I was making these advisory remarks

there was a little agitation behind that cover of the emigrant wagon. I looked inquiringly at Bill. "Got a dog?" said I.

"No dog; but the solid fact is, Mr. Rambler, I'm married."

"Great Scott!" said I; and before I could catch a second breath he turned back the wagon-cover, and, with hat off, a polite bow, and a blush, said, "Allow me to introduce you to my wife, Mrs. Bill Greene."

Somehow I didn't know just what to do, so I rammed my hands into my pockets, and again shouted, "Great Scott!"

Mrs. Greene didn't seem to be much impressed with my presence. I thought she looked a little sour. My well-meant advice to Bill didn't seem to fit her case, and I readily saw that I was in the disagreeable position where two is company and three a crowd. Bill and I made a few ineffectual efforts to continue the conversation. I looked him serenely in the eye, and said, "Captured?"

"Captured!" said he.

"Portland?" asked I.

"Portland," replied he.

I mounted my wheel; and as I glided away from that emigrant wagon I heard a feminine voice say, "Bill, that chap is just as liable to meet his Waterloo as you were."

As I journeyed along I moralized over the fact that man is of few days and full of trouble, and not the least of these is the danger of being captured.

Digitized by Google

My wheel fairly groaned under my kicks that afternoon, and I brought up in good order at Gold Hill, ahead of the train, and, wishing to make a big leap out of that country, I boarded the train for Roseburg, over 100 miles distant.

I was let loose in this town about midnight, and thought it would be the proper caper to stop over Sunday. I was fortunate again to stumble into a nice temperance hotel. It was not run on the alarm-clock plan, for there was a young man in the office ready to receive me. In the morning I learned that the proprietor had recently moved from a ranch to the hotel, and had kept bees in a humble way; but his knowledge of the industry embraced only two things — the hatred of stings and the love of honey. His helpmeet seemed to be better posted on the habits of the bee, but her knowledge in that line was not especially brilliant.

That Sunday morning we had hot cakes and honey. The latter was a mashed up mess, and looked as though comb honey dark with travel-stain had been run through a sausage-machine. I asked the lady if that was some of their own product.

"Oh, no!" said she; "that was brought in the other day from the town of Looking Glass, by Mr. Stricklan, one of our leading bee-keepers."

The lady gave me the names of several bee-keepers, but they were nearly all living out in other towns, some ten miles or more away. This would have been only a nice little turn on the wheel on Monday morning; but as luck would have it the rain commenced to fall early Sunday, and kept it up more or less all day. The roads were soon in good navi-

gable shape for rubber boots; but, alas! it was good-by wheeling.

This storm disturbance disarranged my plans for side trips. It was my solemn intention, after viewing the Looking Glass country, and visiting Mr. Stricklan and his honey-pulverizer, to wheel down toward Coos Bay, in Coos County. Empire City, in this county, is a shipping-point for a considerable area of back country, and is recommended as a desirable country in which to locate apiaries. The county contains 1000 square miles, and about half of the area is still in timber; but that portion opened up to cultivation is of marvelous richness. It is a fine fruit and dairy country, and white clover grows here in profusion. The agricultural resources of the county not being fully developed, the bee-keepiug business is in the same condition, and bees are kept in a small way, and as a side issue. Any person making a business of honey-production, and near enough to the coast to secure low transportation rates by water, would no doubt reap an abundant reward.

I find in all of this northern country an entirely different order of things from what it has been in Southern California. In the latter place honey-production is a profitable business in the absence of settlement and cultivation; in fact, the wilder the country the better the pasturage. In Oregon, settlement and cultivation have to precede honey-production. There are portions of Oregon where the forests of pine, cedar, and fir are so extensive and dense that the busy bee would scarcely find a drop of nectar. There are other portions where manzanita and other honey-producing shrubs and trees are abundant; but for a profitable venture in the honey business we must follow the civilizing plow and the dairy. Milk and honey must go hand in hand in Oregon, as in ancient times they did in the rich valleys of Palestine.

ANSWERS TO SEASONABLE QUESTIONS BY A. I. ROOT

RAPID INCREASE.

Question.—The present severe winter will likely deplete many apiaries in the country; and the problem which will confront many bee-keepers this spring will be, how to increase the few remaining colonies as rapidly as possible to the number usually kept. Will you kindly tell us, in GLEANINGS, how you would proceed where one has plenty of empty combs, some of which have honey in them, where an apiary has been reduced down to a few colonies? Will you also turn to page 140 of Feb. 15th GLEANINGS, and, after reading, tell us how the bees are made to remain with the two-frame nuclei, there described, when dividing a colony in that way?

Answer.—Years ago I would have given the plan given by the editor on page 140, as alluded to by the questioner; but the difficulty of making the bees stay where put was always a great drawback to the plan; hence I sought for another. I should like to have Editor Root tell us how *he* makes the bees stay; for with me, unless some precaution were used, all the bees but the very youngest fuzzy ones would go home, leaving the brood nearly destitute of bees, and thus a great loss of brood would result unless the bee-keeper was on hand promptly to return it back to where it came from. If any colony is made queenless long enough before division, so that the queen-cells are nearly "ripe" when the divi-

Digitized by Google

sion is made, the bees will stay much better, as these cells answer to the mother-queen with such bees; and all but the older, or field-bees, will stay with the mother-queen when she is moved with the frames of brood. But even with ripe cells the most of the old bees will go back home, thus making the nucleus on the old stand three times too strong, while all the rest will be weak. Taking such two-frame nuclei into the cellar for 48 hours at division, and then setting them where they are to stand just at sundown, will help very much toward reconciling them to the new condition of things; or confining them to the hive on the stand they are to occupy the same length of time accomplishes the same thing. But in this case they wear themselves out very fast from their general restlessness, gnawing about the cracks of the hive to get out, etc.; and with either and all of such plans more or less of the bees will go home anyway, or they would persist in so doing with me. If one has an out-apiary three to five miles from home, then he can carry to and from, and do whatever he likes with bees, and they will stay where put, every time, when using any of the division plans. Now for the way I would and *do* work:

I first get out boxes of suitable sizes, according to the size of nuclei I wish, holding from one pound of bees up to six or eight, the latter being a very large swarm. For ordinary nuclei nothing is better than an ordinary 20-section shipping-case, nailed up and leaving off the side strips that hold the glass. On one side of it, where the glass would go, permanently nail on a piece of wire cloth, and for the other side nail a piece of wire cloth the same size as the first, to four strips of suitable length, so these strips surround the wire cloth as a slate-frame does a slate. Now with four small wire nails, one in the middle of each strip, tack this wire-cloth frame to the opposite side of the shipping case or box, when you have what I term a nucleus-box, one side of which can be readily removed at any time with a jack-knife by prying a little so as to loosen the nails. Or this movable side can be hinged on; but I prefer it as above, especially in getting the bees out.

Next get your tinsmith to make you a great big funnel, which should be 18 inches across the top, with the usual slope of side, coming down to a 2½-inch upright, or outlet, which should be about 2½ inches long. If this outlet is much less than 2½ inches in diameter the bees will clog, instead of readily passing down through, when a frame of bees is shaken into the funnel.

Having the funnel made, strike two opposite sides against something, or squeeze together till you have an oval funnel about a foot wide and 22 inches long, in the diameter of the two ways, across the top. This will collect your bees in better, when the frame is shaken, than it would if left in the ordinary funnel shape. Next bore a hole in the top of the nucleus-box which will just let the small or upright part of your funnel down into it, and fix a slide, button, or something of the kind, to cover this hole, when the bees are in and the funnel out. Beside this bore two or three one-inch holes through the top near either end, and with a proper-sized plunger push a suitable-sized piece of wire cloth down into the box so it will hang down inside of the box from two to four inches, when the wire cloth is tacked at the top to make it stationary. These places are for receiving Good or queen candy, granulated honey, or soft A sugar, with a little water poured on it, for feed, should the bees be kept long enough in the box at any time to require feeding; but as a rule I have feed in these places all the time, then I am always safe. This completes all the box part.

Now crowd the colonies you have left in the spring toward full colonies, just as fast as possible, using all the plans with which you are familiar, or given in the bee-books, for keeping them warm, stimulating, etc.; and as soon as any one of them gets strong enough prepare it for queen-rearing as I gave on pages 46 and 47, Jan. 15th GLEANINGS, and continue to raise queens from this colony as you may require, for you can do this and not hinder this colony from contributing its share of bees for increase, as well as the others, as the queen is laying all the time in it. As soon as any of the colonies are full of bees, so they can spare bees from two frames, or from half a pound to a pound, and you have ripe queen-cells, take the cells out and put them into the queen-nursery to hatch.

As soon as the queens are one or two days old, go to any hive which can spare bees, take out two frames, being *sure* the queen is not on either of them, and shake the bees from them down through the funnel into the box, doing this about 10 o'clock. Having the bees in the box, set it in the cellar, house, or shop, or in some shady place where outside bees can not get at the bees which are confined, leaving it thus till about 5 P. M. Now get one of the virgin queens, put her in a cage having a stopper in it filled with queen candy, so that it will take the bees about half a day to eat out the candy and liberate her. Pick up the box of bees and suddenly set it down, when all of the bees will fall to the bottom, when you will quickly open the funnel-hole, put in the queen-cage, and secure it about two inches from the top of the box by means of a wire clamped between the slide and the top of the box, in closing the hole again. Now set the box away in a shady place, leaving it till just at sundown of the following day, when you will find the bees all contented with their new queen, and hanging to the box like a swarm. Then go to any hive that can spare a frame having a small amount of brood in it, and get such a frame, shaking the bees off, and replacing with a frame of empty comb. Put this frame in a hive where you wish your colony to stand, together with a frame of honey, or enough in it to secure the bees from starvation, and two or three empty combs, placing the one having brood in it in the center. Now lower the box of bees down into the hive, near the outside comb, and with your knife pry the wire-cloth frame off enough so the bees can run out freely on the combs, when you will close it and

Digitized by Google

adjust the entrance to suit the size of your little colony.

When you wish to make more little colonies, get your box, now free from bees, shut tight by driving up the nails, and proceed as before. A little later in the season you can form a little colony from each decent colony wintered over, twice every week, and take the same from your colony raising queen-cells too. Keep a good lookout for your combs, using those each time that may show any signs of moth-worms, and in this way you will not need to sulphur them if they are hung two inches apart so the light and air can freely penetrate between them. When the honey-harvest arrives keep plenty of combs on the strongest colonies so that plenty of stores can be stored in these for winter; and as the season advances, use more bees each time in making the colonies; and when fall arrives, if you do not have all the colonies you wish, and have plenty of sealed combs of honey for stores left, take bees from several hives, thus forming a strong colony at once, and hive them on these frames of sealed stores. I have so formed colonies in September, many times, and had them prove the best of any the next season. If you have some honey in your combs from which the bees died, and you are "sharp" in securing honey when the flow is on, you can increase 10 colonies in the spring to 100 in the fall, easily, by this plan, without any feeding or any outlay in cash for queens, feed, or any thing of the kind; and if the season is a really *good* one you can secure some surplus besides. The whole secret is in not commencing operations till the colonies are strong, nearly enough so to swarm, and then not robbing them of bees till they are too weak to work to the best advantage, using few bees for each little colony the fore part of June, and more and more as you go along, thus having all come up to full colonies in August and September.

I have had to be brief with this in order to get all in one article, but I think I have been sufficiently explicit so all can understand. If not, I am open for more questions at any time. Half a dozen nucleus-boxes and a funnel have become an absolute necessity with me in my apiary; for with them I can handle bees as I would potatoes, and make them stay where put every time.

[On reading the foregoing I am reminded that I left out a very important point; namely, that, when I practice dividing to form nuclei, I put into each nucleus more bees than they require, because I know that some of the old ones will go back home. The parent hive is sometimes robbed of all its bees. Those that return shortly, go back on to empty combs, after which they are given a comb of honey. By proceeding on this plan I never have any trouble but that bees enough will remain with the nucleus to take care of the brood. The Doolittle plan spoken of above will work, because I tried it when we were selling bees by the pound, and when we had the big funnel he speaks about, and cages prepared with food. But it seemed to me that at the time it involved a good deal of labor—much more than the one I practice.—ED.]

APIS DORSATA IN THE PHILIPPINES; A CHANCE TO GET THEM TO THE UNITED STATES.

Dear Sir:—After reading the above address perhaps you are wondering who it is that is sending you a letter across 11,000 miles of ocean and land. Well, to explain who I am, and the object of this letter, I will say that my residence is in Dallas, Polk Co., Oregon, and at the breaking-out of the Spanish-American war I was a law student in the office of Daly & Hayter. For several years I have been a very enthusiastic student of bee culture; in fact, it has always been my pet hobby. I have read GLEANINGS and your A B C of Bee Culture. When the war against Spain was declared I enlisted with the 2d Reg. Oregon Vol. Infantry, and we came with the first expedition to the Philippines. Our regiment was the first to land on Philippine soil.

I have read of the "giant bees of India," and the unsuccessful attempts of Mr. Frank Benton to get them to the United States on account of the exposure to fever in the jungles of India. Well, I write you this letter to inform you that the largest species of *Apis dorsata* is in the Philippines. Their colonies are numerous in the mountains. They build a comb five or six feet long, four feet wide, and from ⅞ to 1½ inches in thickness. In appearance the giant bee is a smoky, glittering, irridescent, black, wasplike figure with orange bands encircling its body.

Now, what I want to do is to get some of these bees to the United States, either by sending queens or swarms. Knowing your long experience in shipping bees and queens, I write to you, asking for information in regard to sending them—the cages, etc. It takes from 20 to 30 days to make the trip from Manila to San Francisco; and as I have read of your sending queens to Australia I don't think we should experience much trouble in sending from here. I have talked with several natives, and they have agreed to bring the bees from the mountains to Manila, for a small amount. Will you kindly help me out by sending advice, cages, and instructions for using? In return I will send you several queens for your own use.

JOHN C. UGLOW,
Manila, Philippine Is.
Co. M, 2d Reg. Oregon Vols.

[This is indeed "a streak of luck," as the boy said, that we have actually a modern bee-keeper within so easy access of *Apis dorsata*. We have sent him full instructions how to send them by express, requesting that he send them to Geo. W. Brodbeck, of Los Angeles, Cal. The latter gentleman is to forward the bees on to us after he has given them a cleansing

Digitized by Google

flight and a "change of rations," but on no account is he to let the queens out. If our young soldier friend has not been shot down in the late battles we may expect shipments of *Apis dorsata* in the near future. Whether they will get through alive remains to be seen. We have offered him $25.00 for one queen alive; $35 00 for two; $45.00 for four, and $50.00 for five.

I have also heard from our missionary friend, Mr. W. E. Rambo, of Damoh, India, stating that he has got track of *Apis dorsata*. As soon as he can secure them he will prepare shipments and send them on.

It will be a joke if GLEANINGS gets ahead of the government in securing the big bees. At all events we propose to leave no stone unturned, and will get them if they can be secured. While I do not believe they will ever be of much value to us practically, yet we shall never know much about them unless we make the attempt.

If there are any others of our subscribers in India, Philippine Islands, or elsewhere, who will be in position to help secure for us *Apis dorsata*, we hereby give them notice that we will pay the above prices on the first shipment.

The daily press has given us enough free daily advertising of these big bees to create a large demand for them already. We are already getting calls. One man says he wants *Apis dorsata*—that he has not been able to get any honey with his common bees, and thinks it would be a good idea to "change my breed." —ED.]

THE RECENT FREEZE IN FLORIDA; ALSO SOME SUGGESTIONS IN REGARD TO PROTECTING FLORIDA STUFF.

The 13th of February Florida received a sad blow in the shape of a freeze. All tropical trees are killed as far south as Palm Beach, and badly injured in Miami. The orange, lemon, and grape fruit trees were very badly hurt as far south as Titusville, and injured more or less as far south as Palm Beach. My groves escaped with but little loss. A few of the orange-trees were in bud and bloom, and did not freeze so but I shall have a full crop of fruit. I banked with dirt about 400 of my youngest buds to save them, and had a few not banked killed. I have 15 acres out in grove, or 1500 trees, and the ground ready to set 500 more this season. My grape-fruit trees which you saw in 1895, Feb. 7, that were killed back to the trunk of the tree, averaged me $13 worth of fruit to the tree; and some that I budded at the ground in March, 1896, bore from $5.00 to $13.50 worth of fruit to each tree this year. This freeze has fixed the prices on good fruit for years to come. I had a good many tropical trees, but I think I shall have to leave these to Cuba and Porto Rico I had ½ acre of bananas under cover, with six inches of hay on top of the common cover, that were all frozen to the ground, and five acres of beans and five acres of Irish potatoes, some of them eight inches high. Tell A. I. they looked about like the little patch he saw at Weise's, Feb. 6, just before the freeze of 1895.

My bees are in good condition, but the recent cold will cut off some of the honey sources. I am running my bees in six different apiaries. I think people make a great mistake in having too many bees in one locality. H. T. GIFFORD.

Vero, Fla., Feb. 23.

ZERO WEATHER IN FLORIDA.

Mr. Editor:—About a week ago I wanted to tell you (but being very busy failed to do it) how the bees were working in this part of Florida. They came sailing heavily laden, and dropping in front of their hives like shot. The titi, that grand source of honey in this locality, had commenced to bloom. On the night of the 8th of February the mercury fell to 24°, and on the 9th a shade lower. The orange-trees had blossom-buds, which were all turned black; also the new growth. There have been frequent rains since August, and, preceding the frost, many days of warm misty weather, which promoted vegetation.

Last Sunday, the 12th, there was a cold rain, followed by snow and sleet, and vegetation was coated with ice. The cold increased, and finally the thermometer indicated zero; the 13th, ten degrees above zero; the 14th, a little below freezing. To-day, the 15th, there is a cold rain with chilly wind.

Our rejoicing is turned into mourning as we view the wind scattering the bright green leaves of our orange and lemon trees which we have petted and caressed for many years. Our garden vegetables are destroyed.

MRS L. HARRISON.

St. Andrews Bay, Fla., Feb. 15.

BEES FLYING OUT OF THE HIVE IN ZERO WEATHER; WHAT CAUSES IT?

My father has three colonies of bees in box hives under a shed facing the southeast. Yesterday evening at 4 o'clock, temperature 4 degrees above zero, one of the colonies (a hybrid) commenced flying out as they would during a heavy flow of honey in mid-summer, going only a rod or so from the hive, until, overcome by the cold, they dropped dead in the snow near the hive. Some carried out dead bees from the hive, and were chilled before they could get back. About a quart perished before they quieted down. The other two colonies on the same bench were quiet.

Chapmans, O., Feb. 11. W. L. MCGHEE.

[This is a rather hard question to answer. As it was a box hive, possibly a field-mouse, or even a rat, crawled up among the combs to get food and warmth; and if so, he would cause a general excitement among the bees. This would result in their flying out, perhaps, as they did. I could scarcely think that disease, or, more specifically, dysentery, would cause them to fly out in this way. In that case, the snow would be badly spotted around the hives. I have known mice to get into hives in winter time, and cause a general commotion. While the bees would be balled up in such a compact cluster as to make them almost insensible to *ordinary* disturbance, yet the *odor* of an animal crawling round their

Digitized by Google

quarters seems to harrow them up far worse than opening up the hives. The alarm is given, and the bees rush out naturally to find the intruder.—ED.]

CUBA, AND THE EXPENSE OF LIVING THERE.

I've been here but a short time, but I do not doubt that it is a good bee country; but there are other things to take into consideration, such as the difference in customs; the living expenses, the different values of money. etc. Honey, they tell me, sells for half a dollar a gallon here; but a dollar of this money is only 60 cents in our money. Then the expense of living here is considerable. Meat is 30 to 40 cents per pound; milk 10 cents a quart; eggs, 5 cents each; kerosene oil, 50 cents a gallon; gasoline and alcohol about the same. This, in a country where it has to be used for fuel, is considerable. There is no wood about here. I have hard work to get enough to run a bee-smoker. C. F. HOCHSTEIN.

San Francisco de Paula,
Province of Havana, Cuba, Jan. 20.

A GOOD REPORT FROM CRAWFORD CO., PA.

Bees did well here last season; had the most honey for years, and of the best quality; little swarming, and went into winter in best of condition. Tell Mr. Dadant to hold his head up. I have three sizes of hives—one size very large—and my bees have always wintered best in the large hives, and made the most honey. Times here are good. We have had two of the best seasons here ever known; barns and cellars are fuller than ever before; every one who wants to work is at work; very few poor; no strikes; no tramps for the last two years. It looks as if our people were trying to do better, live better, and be better than ever before, and that their efforts were being rewarded from on high.

Steamburg, Pa. JOHN BALDWIN.

W. W., N. Y.—If your bees have plenty of stores I would not advise feeding as soon as they are put out on their summer stand. When settled warm weather comes on, feeding to stimulate brood-rearing may be practiced to advantage.

H. K. J., Ore.—You can begin to Italianize as soon as the bees begin to fly—the sooner the better. President Lincoln once said it is not wise to swap horses in the middle of the stream; so I would not advise Italianizing in the midst of the honey season. It should be done considerably before the honey-flow or after. In late summer or fall, queens are cheaper, and Italianizing can be done at less cost. Transferring should be done as early in the season as possible. We would usually say about the time of fruit-bloom.

C. E., Ark.—We know of no method of preventing honey from candying in barrels. The only thing to be done is to remove the top head, scoop out with a common spade into tin pails and liquefy it. This is a good deal of work, but is the only thing that can be done. When honey is put into square cans, as we recommend, the cans themselves can be placed on a coil of steam-pipes, or placed in a tub of hot water. This will restore the honey back to the liquid form.

W. L. C., Ky.—Propolis may come from various forms of plant life, because it varies in different localities. In one place it may be a transparent red and in another a muddy brown. The bees may gather propolis from the buds of the cotton-trees, and, where these kinds of trees are in abundance, may take it from them exclusively; but nearly all buds at certain seasons of the year have a certain amount of gum which may be utilized by bees, and the gum that exudes from the bark of certain trees may also be used at other seasons of the year.

W. F. B., N. Y.—There is nothing you can plant on as small an area as 50 feet square that would be in any real sense advantageous to the bees. Why, it takes almost a square mile of good clover-field to produce very much effect in an apiary. A single acre, or even a whole farm, of honey-plants would not keep more than ten colonies busy, if it did that. Years ago we had on our honey-farm something like five acres of honey-plants all told; but the bees in our general apiary robbed just the same, or wanted to, at least, when clover and basswood ceased to yield, thus showing that our special honey-farm was as a mere drop in the bucket.

R. L. M., Fla.—After queen-cells are made as described in Doolittle's book they must then be grafted—that is, be supplied with royal jelly and larvæ. Queens will not lay in them, and it is altogether improbable that bees would be so accommodating as to do the work for us. For further particulars see Doolittle's book. Sample foundation is too heavy. Your rolls should be screwed down tighter. Brood foundation should run from 6 to 7 feet to the pound, and surplus from 10 to 12; but on your mill you will probably not be able to get better than 9 or 10. It is desired to get the bases as thin as possible, being careful, of course, not to mash the faces of the rolls.

B. M. W., N. Y.—For reasons that I can not stop to enumerate, there are many objections to a house-apiary. If you have plenty of room in a yard, and are free from the depredations of thieves and meddlers, I would advise keeping the hives outside. It is pleasanter to work outdoors; and then in the winter, if the bees are put in chaff hives or in the cellar, there is much less danger of loss. No one has yet, so far as I know, ever succeeded in wintering successfully, year after year, in a house-apiary. There are many advantages, on the other hand, in having bees housed all the year round. For further particulars we would refer you to the A B C book, under the head of House-apiaries.

Digitized by Google

PERHAPS our readers have noticed that of late we have been bringing in short symposiums on some subject relating to bee-keeping. In this issue we have three different ones; namely, Cuba; proper pronoun to apply to bees; comb foundation.

IN our last issue I promised to give something more in regard to the matter of killing the germs of foul brood by boiling. A little symposium on this subject will be found on another page. I would call Mr. Taylor's attention especially to the article by Prof. Hodge.

SOME of our readers, I believe, will enjoy Stenog's usual introductory lines in Pickings. These are original, on the order of the burlesque, and were, he says, "written on the spot." I did not know before that he was a poet, or I should have had him "lining" before.

LATER reports seem to indicate that winter losses will be heavier this year than for the three or four years preceding, at least. Very few report more than 25 per cent loss. The principal losses this year will occur from bees wintered outdoors in single-walled hives. So far as I know, there has been very little mortality where bees have been put up as they should have been. Those in good dry frost-proof cellars, or in double-walled or chaff hives, are doing well everywhere, so far as I know.

THE editor of the *Review* has just gotten out a handsome prospectus entitled "Some of the Characteristics of the *Bee-keepers' Review*;" and in the line of fine-art printing it excels any thing that has heretofore been gotten out relating to bee culture. The *Review* is Hutchinson's baby, his only hobby, his specialty; indeed, his whole heart and soul are in it. He started with a little unpretentious paper, without any capital save the good will of bee-keepers, and now has a journal of which he may be proud.

IN the new magazine, entitled *What to Eat*, we find an article, "Honey as a Food," that is strangely familiar. It is none other than a liberal extract from Dr. Miller's honey-leaflet. This article appearing in a handsome magazine, and one that is undoubtedly authority on the subject of what to eat, will receive the recognition it deserves. I am glad that public sentiment is being awakened enough so that now there is actually a field for a magazine devoted exclusively to the subject of foods that are fit for human consumption.

PRESENT indications go to show that the last edition of 10,000 copies, making 62,000 sold, all told, of the A B C book, will be exhausted long before a new edition can be printed. We are running our $2500 press at its highest speed night and day, to print off some 200,000 catalogs, keep up our regular edition of GLEANINGS, of 10,000 copies, besides a multitude of little jobs. To print another edition of 5000 copies of our 400-page book, in addition to the above, means that our press has got to put in extra full time.

ON account of the great crowd on our columns, as spoken of elsewhere, I find it necessary to reject all articles bearing on the Dickel theory versus parthenogenesis. This subject is now occupying the attention of the foreign journals; and as there seems to be such a diversity of opinion among scientists I hardly think it will be profitable to take up space that we can devote to other matter that pertains more directly to the dollars-and-cents side of our pursuit. When the Dickel theory is settled, buried, or proven, *then* I think we can afford to give our readers the conclusion.

NOTWITHSTANDING we have been printing eight extra pages since Jan. 1, I find that I have a whole drawerful of excellent articles (sifted from a bushel more that have gone into the "waste-basket") that I should be glad to publish if I had room. Perhaps a little later I can find the space for them. For the present, at least, I should be glad if some of our correspondents would not shove their copy in quite so fast. In justice to the great mass of our readers I try to keep before me this one point; namely, to spread before them the very best I have; but very often I find that I am holding back matter just as good as I give to the public, for the reason that the line has to be drawn somewhere.

HONEY-LEAFLETS IN OTHER FORMS.

IN our last issue I referred to the suggestion of a correspondent, that the facts in the honey-leaflet should be put on a label, said label being large enough to go around the can. At that time I was not aware that any one had put the idea into practice; but I find that Mr. York, of the *Amer. Bee Journal*, has been doing this very thing. He sends me a sample of a very neat and pretty label designed, I judge, to go around tin cans. One portion of the label is devoted to the subject of honey as food; another sets forth the contents of the can, and the third and last portion has to do with honey-cooking recipes.

Mr. York also sends me his 1899 Honey Almanac, a booklet of 32 pages. Every alternate page is devoted to the calendar—the other pages being taken up with matter from the honey-leaflet by Dr. Miller. For further particulars apply to G. W. York & Co., 118 Michigan St., Chicago, Ill.

CHEAP VS. HIGH-PRICED QUEENS.

I HAVE just been wondering whether there would not be a call for $5.00 and $10.00 queens. Such queens should be tested, not only for purity of the bees, but for the even run of

Digitized by Google

their queens. The bees of the queen as well as the bees of her daughters should be good workers. It may take a whole season to determine all this.

Mr. Alley once said he had a queen for which he would not take $100. He sent us one of her daughters, and later on desired to buy her back, as his $100 queen had died. Not then knowing her exceptional value we let her go; but I learned afterward that her daughters were all evenly marked, and produced bees of excellent working qualities.

But it strikes me that, if queen-breeders could find a demand for $5.00 and $10.00 queens, we might, among the whole of us, develop strains of bees that would be very much superior to the ordinary stock of queens selling for 75 cents, and even as low as 50 cents. While we ourselves have catered to this demand—never, however, selling as low as 50 cents—I am inclined to believe that, if all queen-breeders had striven for higher quality, and demanded higher prices, some bee-keepers, at least, would be able to get more money than they have been able to secure with these cheaper queens.

THOSE PLAIN SECTIONS AT TORONTO; HOLTERMANN'S REPLY.

WHEN any one has been criticised for his statements or course of action, in GLEANINGS, I believe in giving that one an opportunity to defend himself in his own words. Mr. Holtermann has sent in a reply, and this I cheerfully place before our readers:

I am a little surprised at your letter in GLEANINGS in one paragraph. It says, "And what explanation is there for their being where they were privately seen (if I have the right idea) by Holtermann and others, and Holtermann, in the interests of fairness, didn't see that they *were* exhibited?"

I certainly was a little surprised to see GLEANINGS, which, I understood, put up so high a standard, get down to publishing insinuations as per above, and allow a correspondent to do it without an attached signature. Mr. Taylor showed me, and probably others, the case *after* judging had been done. I did not see it before. The paragraph unsigned is not Mr. Taylor's writing, for he is too honorable to insinuate that I, out of personal interest, allowed the honey to be unjudged. Several, evidently, saw the honey afterward; did any of those think that, if it had been exhibited, it would have taken the prize for the best-filled sections? I think no one would think so for a moment. When you stated in GLEANINGS that I borrowed the cuts to illustrate the article written against plain sections, you prejudiced the public against my arguments, and no retraction on your part could undo the unwarranted injury you then did me. Was it prejudice or carelessness when you stated that I had borrowed these cuts? To me it matters not what kind of sections the public use; but I have tried to keep bee-keepers from going to new expenses with an article which they may discard or find of no added value. If better honey can be produced with the plain sections, let bee-keepers send them to the Toronto Exhibition this year. I have yet to see as perfect a comb or section with plain sections as we have taken with the ordinary section.

I have nothing more to say in addition to what I have already said, only this: If plain sections have been better, then the plain-section men on one side of the line have been so modest that in no single instance have they sent them to the leading fairs; and if they are so modest they are a marked contrast to *some* of the advocates of plain sections on the other side.

Brantford, Can., March 6. R. F. HOLTERMANN.

In reference to those electrotypes, I published my correction before I was solicited to do so by Mr. Holtermann, and in the very next issue. Was it carelessness? Yes, it was that and nothing else, and I am not ashamed to acknowledge it. If Mr. Holtermann were willing to do as much, he would leave a better impression.

Mr. Holtermann's last paragraph is either a little mixed or else I do not understand him. If I do interpret him, he has contradicted himself, for he says that in no single instance were they (plain sections) sent to the leading fairs in Canada, and yet in his two preceding issues he says they were sent to the Toronto, Ottawa, and London expositions.

I might and could answer several other points in the above; but if I did so, then Mr. H. would ask for more space. I prefer to let our readers, if they are interested, judge of the merits of the case, and there let it drop.

AMALGAMATION IN PROSPECT.

VERY recently some correspondence has been begun, looking to the amalgamation of the old and new Unions, or what will be, when the thing is accomplished, the United States Bee-keepers' Association. General Manager Secor, of the U. S. B. K. A., has taken the initiative, through the advice and suggestion of the directors, and I have just this day received a note from G. M. Doolittle, President of the old Union, that will explain itself.

I note what is said relative to the uniting of the two bee-keepers' societies, on pages 188 and 189, of GLEANINGS, and I have this from General Manager Newman in reply to a letter of mine of recent date: "I note what you say about consolidation, and am quite willing that you should undertake the matter and work in your own way to bring it about. I am quite willing to *assist* in arranging *details*, as I always have been. No one will be more pleased to have the matter amicably adjusted, and the two organizations united for the purpose of doing effective work, than will I. I feel that, in leaving this matter in your hands, it will be properly done." As I am agreeable to the uniting of the two societies, and, so far as I know, all concerned are the same, it looks to me that this might be accomplished in the near future to the advantage of all. But I must be allowed to request as a favor that no extra burden be placed on my shoulders, for, through my sickness and broken bones, my work got behind so far that I am not nearly up with it yet, and I also feel that there are others more capable to deal with this matter than I am. But I will try to do all that is really necessary for me to do in the matter, as the oncoming future may point the way.

Borodino, N. Y., March 10. G. M. DOOLITTLE,
President National Bee-keepers' Union.

With every one favorable to it, it looks now as if amalgamation might come very easily; and the only thing now remaining, is, probably, to bring about the actual thing itself in proper legal form.

VERY often I feel like saying a good word for something advertised in our journal; but there is just one thing I *won't* do; and that is, father *any* statement made by an advertiser regarding his own goods. When I know the value of a thing, then I am willing to say a word. But there are other meritorious articles of which I know nothing personally. For all such we are for the present willing to let each advertiser, if he likes, say a word outside of his advertising space; and with that end in view we are going to start another department which our advertisers, who use as much as $10.00 worth of space, may use occasionally. This space will be limited to a single column, and each advertiser will be limited to not more than 2 inches of that space, and for a while, at least, it will be given free.

Digitized by Google

"WHEN shall discussion be cut off?" is a question that is discussed in the *Review*, especially when it relates to something outside of bee-keeping. My plan is, not to allow any thing to go into the bee department that has any reference to politics and the great social problems of the day. Not that I am not interested in these questions, because I take periodicals that discuss them more thoroughly and fully than could possibly be done in a journal that is (or ought to be) devoted to something else.

THE MICHIGAN FOUL-BROOD LAW.

Friend Ernest:—I inclose you a copy of the foul-brood bill now before our State Legislature. Will you please give it space in next number of GLEANINGS, and urge every bee-keeper in Michigan to write without delay to his senator and representative in the State Legislature to favor its passage?

GEO. E. HILTON,
Pres. Mich. State Ass'n.

Fremont, Mich., Feb. 23.

SECTION 1. The people of the State of Michigan enact, that, upon the recommendation of a majority vote of the members of the Michigan State Bee-keepers' Association, the Governor shall appoint for a term of two years a State Inspector of Apiaries, who shall, if required, produce a certificate from the Governor that he has been so appointed.

DUTIES.

SEC. 2. The inspector shall, when notified, examine all reported apiaries, and all others in the same locality not reported, and ascertain whether or not the disease known as foul brood exists in such apiaries; and if satisfied of the existence of foul brood, he shall give the owners or caretakers of the diseased apiaries full instructions how to treat said cases, as in the inspector's judgment seems best.

DESTRUCTION OF BEES.

SEC. 3. The Inspector, who shall be the sole judge, shall visit all diseased apiaries a second time, and, if need be, burn all colonies of bees and combs that he may find not cured of foul brood.

VIOLATIONS.

SEC. 4. If the owner of a diseased apiary, honey, or appliances, shall sell, barter, or give away, any bees, honey, or appliances, or expose other bees to the danger of the disease, or refuse to allow said inspector to inspect such apiary, honey, or appliances, said owner shall, on conviction before a justice of the peace, be liable to a fine of not less than fifty dollars nor more than one hundred, or not less than one month's imprisonment in the county jail, nor more than two months' imprisonment.

ANNUAL REPORT.

SEC. 5. The inspector of apiaries shall make an annual report to the Governor of Michigan, giving the number of apiaries visited, the number of diseased apiaries found, and number of colonies treated, also the number of colonies destroyed by fire, and his expenses.

EXPENSES.

SEC. 6. There is hereby appropriated out of any moneys in the State Treasury, not otherwise appropriated, a sum not exceeding five hundred dollars per year, for the suppression of foul brood among bees in Michigan. Said inspector shall receive four dollars per day and traveling expenses, for the actual time served, which sum shall not exceed the moneys hereby appropriated, to be paid by the State Treasurer upon warrants drawn and approved by the Governor.

SEC. 7. This act shall take effect and be in force from and after its passage and publication.

SEC. 8. By this act all previous legislation on the subject of foul brood on the statutes of Michigan is hereby repealed.

While this is not the same as the excellent Wisconsin law, it contains the essential features of it; and those features are the appropriation of an amount of money, not exceeding $500, and the appointment of an inspector who shall receive $4.00 per day and traveling expenses. A law without these essential features is like the play of Hamlet with Hamlet left out. We hope every man in the State of Michigan will do his full duty; and those who can should go to Lansing and do a little talking privately with the senators and representatives.

THE BOILING-POINT OF HONEY—WHAT IS IT?

IN Straws, Dr. Miller refers to what Mr. Taylor says regarding the difference between the specific gravity of honey and that of water, and suggests that Mr. Taylor may be right in assuming that the boiling-point of the former is much higher than that of the latter. I am surprised that neither Dr. Miller nor Mr. Taylor made the experiment each one for himself. Taylor, as you know, believes that the evidence of "one's own senses" is "a thousand times better" than the evidence furnished by some one else, whose skill is unknown.

I took two thermometers, each showing register-marks running up to 220 and 230 respectively. Of course, I expected that they would show a boiling-point, when plunged into water in a state of ebullition of 212 or thereabouts. But imagine my surprise when one recorded 220 and the other one 224. I then plunged them into boiling honey, and the mercury went out of sight, and doubtless would have burst the thermometers had I not withdrawn them in time; but as neither one could show more than 5 degrees above that of the *indicated* boiling water, it proved nothing; and, taken all in all, I was satisfied that the thermometers were not accurate, for the difference in sea-level could not possibly make that much difference. I finally found a thermometer (how accurate it is I can not say), that we use in our rubber-stamp department, that will record anywhere from 220 to 350 Fahrenheit. This I plunged into hot water, but the mercury did not rise up to the point where I could see it. I next plunged it into honey that was boiling—yes, it boiled all over the stove—and got a record of 232. If this instrument were accurate—that is, would show boiling water at 212 or 213—then there would be a difference of 17 degrees between boiling honey and boiling water. As the boiling-point did not show at 220, then I *know* there was a difference of at least 12 degrees. If this thermometer showed *under* the actual boiling-point instead of *above* it, as did the others, we should be as much at sea as before.

I feel very sure that some of our readers will be in position to use accurate thermometers and give us the *actual* boiling-point of honey as compared with that of water. A good deal hinges on this question.

In the mean time I think that, for the time being, *until we know*, my wholesale recanting was the safer side on which to err. Another point to be considered is that, if a scientist boils his foul-brood germs in beef gelatine, or

Digitized by Google

pure-culture fluid, the specific gravity of the gelatine will be about the same as that of honey—if any thing, greater. If he did the boiling in water then there may be something in the Taylor point.

PUSHING A GOOD THING; STANDING BY ONE'S CONVICTIONS.

I HAVE been criticised for pushing the merits of plain sections and fences; but the criticism has come very largely from those who have not tested them, and from one or two others who have tried them in a small way. To all such I have only the kindliest of feelings. I know it is natural for outsiders to think that the Root Co. would push them because of the few paltry dollars there would be in a new thing. Indeed, if I were an outsider I am not sure but I should share this feeling, because there are grasping monopolies, and one who does not know us better might think we were one of them. As to our being a monopoly, nearly every thing of value in beedom is as free as water—open to the competition of the world. But I hope we have a higher motive than that coming from the love of the "almighty dollar."

When I feel morally certain of the value of a thing, as I am of the plain section; when I have seen the results with my own eyes; when I have talked with the men who have used the thing, and like it; nay, more—when I have read scores of reports favoring it, I do not feel like backing down even a little. I would have been just as willing to back down in the advocacy of plain sections as I was in the case of the deep-cell (or drawn) foundation. But as time goes on, and as reports pile in, I feel more determined than ever to stand by my convictions. Favorable reports are coming in every day, as I have said before; but there is not space in the journal to publish them all. But here is one out of several that I had pigeon-holed to go into our letter-files. It speaks for itself:

I have tried the fences the past season; and if any season would show up the poor side of an appliance for bees or bee-hives, the last one surely would. I watched the outcome of using fences very carefully, and note the following: Two hives of bees, side by side, were given the second super each, one containing fences, the other old-style sections 4¼x4¼, no fences or separators, both having stored the first supers nearly full. The one containing fences stored nearly double the amount that the other did. Now, I found this to be the case all over the apiary; in fact, the bees seemed to give the preference to supers containing sections and fences, no matter whether they were next to the hive-body or two or three supers above. I won't say why this is so, but will leave that for you. As to the matter of cleaning fences, it is not a very great task, as only the uprights have to be cleaned; and the pleasure of having neat and even sections of honey compensates for whatever extra time is used. W. T. SHERMAN.

Millard, Wis., Feb. 13.

LARGE OR SMALL COLONIES?

IN the *Bee-keepers' Review* for February appears a symposium on this question, the subject matter being made of extracts from various bee-journals, followed up by an extended footnote by the editor. He sets forth fairly the views of the different writers, but still clings to the opinion himself that the smaller hive is *the* thing. He finally summarizes the matter in this way:

Bro. Dadant's trouble comes from expecting and *getting* too much out of each queen. Instead of "horsewhipping" the queens, I would get more queens to help them. Hive your swarms in smaller hives, give fewer combs to each queen, and another year you will have more queens in proportion to your number of combs than you have now. Bro. Dadant says to himself, "Here I have 1000 combs and only 80 queens. I must give these queens all the room possible, so as to get just as many bees as I possibly can." *My* way of looking at it would be like this: "Here I have 1000 combs, and I want to get just as many bees out of them as possible, so I will have plenty of queens, and thus get the combs just as full of eggs as I can." You see that Bro. Dadant and myself are both after bees, but we go at it in a different way.

It does not seem to me that Bro. Hutchinson quite hits the nail on the head. It is not a question of whether one queen or a plurality of them raises a certain number of bees; but it is a question whether the colony shall be a large or a small one. As there can be only one queen in the hive, then (if the colony is a large one) one queen must be the mother of all the bees. But Mr. Hutchinson seems to take the ground that, as it is difficult to get a queen that will breed up to such a point, better have two queens in two colonies. But I raise the question right here: Suppose there are 5000 bees to the pound, and that there are five pounds of bees, or 25,000 to the average eight-frame colony. With two eight-framers we should have 50,000 bees. My theory and practice are that the 50,000 in *one colony* will bring in more dollars to the bee-keeper than the *same number* equally divided *in two colonies*.

It is well known that one large factory, for example, can manufacture more cheaply and make more money than two smaller factories of half the size. The same executive force of the smaller concern, the same book-keepers, the same clerks, the same foreman, can manage a producing force of twice the size as economically, or very nearly so. Perhaps the illustration is not quite parallel, but it serves to illustrate my idea. During the working season it is conceded, I think, that a large colony will have more working bees *in proportion to its size* than a small one.* But Mr. Hutchinson may bring up this question: Granted that there are more working bees in a large hive in proportion to its size, would such a colony make more *money?* Mr. Dadant has handled more bees—that is, operated more colonies—than any of the parties in the discussion. Others may have handled as many for a short time; but the Dadants as well as the Frances have each operated some 400 or 500 colonies for a period of 15 or 20 years, and have made *money* as well as honey.

---

* After I had prepared the matter it occurred to me at this point that there might be a question raised here. This I referred to A. I. R., and he replied something after this fashion: It takes fewer rods of fence per acre in a large field than in one of less size. In the same way there are fewer bees required to keep up the necessary animal heat per square foot of brood in a large colony than in a small one; that is to say, the bees that might ordinarily be required to act as nurse-bees, and to help sustain animal heat *in a small colony*, in a large one can go to the field. A. I. R. thinks it is almost an axiom that there are more working bees in a large colony *in proportion to its size* than in a small one.

Digitized by Google

They bind heavy burdens and grievous to be borne, and lay them on men's shoulders; but they themselves will not move them with one of their fingers.—MATT. 23:4.

Since I have had something to say about divine healing, a great mass of correspondence has been sent me, indicating that there is a deep interest in the subject. Periodicals explaining Christian science, faith cure, more than I can read, have been sent in. A good many insist that I am groping in midnight darkness; quite a few think that I exhibit my want of faith by using even such a remedy as hot water; but people in whom I have most confidence, especially the ministers of the different denominations, agree with me, I believe, as a rule. I may be in darkness, but I am praying for light, and I have faith in the great Father above to believe that he will give it. At the present time I can not agree with Dr. Dowie that it is never God's will that we should be sick. How could we appreciate health or freedom from pain if we knew nothing by practical experience of sickness and pain? I am sure God teaches *me* great lessons by permitting me to suffer; and while my fellow-men are obliged to suffer, I prefer to take my share of it—yes, even though it makes me at times groan with anguish, and causes me to pray for deliverance.

Since I have been confined so much at home, and many times obliged to lie on my back, I have been asking God to indicate to me what I shall read. I can not bear to sit still idly; and while there are great heaps of books and periodicals piled in upon me every day, it needs wisdom to choose what to read and what not to read. One Sunday, when it began to be evident that I could not go to church, I wanted something suitable for Sabbath reading. When I want something of sufficient interest to make me forget my pain, I often turn to a Sunday-school book, and I have never yet been disappointed. I have never found a book from our Sunday-school library that did not teach good and wholesome lessons. I wish I could say as much of the books in our town library. Well, on this particular Sunday the only Sabbath-school book in the house was by Mark Twain. I hope my good friend Twain will forgive me when I expressed surprise that any book he had ever written should be placed in a Sunday-school library; and for a while I could not think it quite the thing to read Mark Twain on Sunday. Then I remembered my previous experience, and concluded that the committee who selected the books must have had some good reason for selecting this one.

The title of the book is, "The Prince and the Pauper." I read it clear through during the day, and was both surprised and delighted to find that I could so thoroughly enjoy *any* book under the circumstances. If I am not a better man for the lessons I received during that one day, I certainly *ought* to be. The author does not choose any text to start out with; but I have supplied a text. A sort of legend, or tradition, we are told, furnished the foundation of the story. If the book were only published in a cheap form, I should delight in furnishing it to every friend I have in the world, at a very low price. May be it is—I do not know.

Away back, about 300 years ago, by a queer combination of circumstances a boy king was transferred from the royal palace to the slums of the city of London. For several days, or may be weeks, he was obliged to put up with the same sort of life that the poor degraded outcasts have to bear. He was obliged to submit to every form of injustice with which the laws of England away back ground down her subjects. In the back part of the book is an appendix giving us true copies of the laws and customs of that time. We sometimes speak about asking a doctor to take his own medicine. This young king was absolutely obliged to submit to the punishment that his laws were made to inflict on others. Perhaps the laws were not of his own making; but when he knew about them he had been permitting them still to stand on the statute-books. The book is a sort of turning things around. It says, in substance, what poor people often do say to those who are away up in wealth and high offices: "Suppose you change places with us just a little while, and see what you think of it."

Then there is another phase of this book that took a mighty hold on me. This penniless youth, without a friend in the world, kept proclaiming, "I am the king's son." But everybody laughed at him, and called him a madman. In one sense he was *worthy* of being king—he took it all patiently; he submitted to all their indignities in a way that was almost Christlike; but during all of that terrible experience of suffering, oppression, and wrong, he made mighty resolves to change things if he should once succeed in getting back where he belonged, for he never for one moment doubted that he would ultimately regain his crown and reach his own. Under the circumstances it was grand and noble in him to hold fast to the fact that he was king, or, if you choose, the king's only son. I hope my readers have read Pansy's conception of what it is to be a "king's daughter;" and in like sense we each and all of us may be, if we are not, *sons* and *daughters* of the *king*.

I now wish to tell you how the book did me good. When those terrible zero days were upon us I went all over the factory to see if the rooms were comfortable for the men to work. Some of the drip-pipes were frozen up; but we soon got them free, with the exception of one radiator, or, rather, long coil of pipes. The heat went only half way through; and the men who were obliged to work near that west wall, exposed to the zero blasts, where the pipes were cold, really suffered. I called Harold to help me. He is the young plumber I have often mentioned. We followed the drip-pipe of this coil down through three stories below, warmed it up with hot water

Digitized by Google

and lamps, but all to no avail. When I came around again I found the pipes were still cold, and said to the men, "If you can keep on with your work just a little while longer *I* will get the steam through these pipes. I am sure I can, for I never yet failed when I stuck right to it." Well, I fussed with those pipes all day, but I could not get the steam through. I consulted the "boss plumber," and he said the drip *must* be freezing up somewhere, for there *could* not be any other reason why it should not heat up as it had done every day all winter. During the middle of the afternoon I decided there was not pressure enough, and so I got the engineer to give more pressure on the exhaust steam. This, of course, loaded the engine more, but it was only temporary. It did not make any difference. The men stuck to their posts and kept at work. I pitied them from the bottom of my heart, and felt disgusted with myself to think that I could not unravel the mystery. I went to Ernest and John about it, thinking I could get sympathy, even if I did not get any mechanical assistance; but they just laughed, and told me not to worry myself out (and catch *more* cold) about the pipes; if the men got so cold they could not stand it, let them go home. But I knew these men sadly needed the money for every hour they worked. Besides, it was quite important that the work should be pushed ahead. The day's work was finally ended. The men stuck to their work, but the mystery was unsolved. I told the night watchman I was going to have steam through that coil of pipes, even if it took all night to do it. Then we managed to turn on "live" steam; but even live steam would not go through. I took hold of the valve and turned up it until it was closed, and—*then I swung my hat*. Turning the stem of the valve out and in made no difference whatever. During the day I had suggested to the foreman of the piping that it seemed as if that valve was stopped up; but he declared it could not be, for it was certainly wide open, and it was a *brand-new valve*. I went after him when I made my discovery, for he happened to be in the factory, and asked him to get a wrench. A few minutes revealed the trouble. Even though it *was* a brand-new valve, and cost quite a little money, the disk that opened and closed the passage had come loose from the stem, and was stuck in the seat. The only steam that could get through, either live or exhaust, was what got through the center of the disk. The next morning, when the whistle blew, the radiator was hot, you may be sure. Now, perhaps people do not often suffer this way in factories; but this illustrates the way people at large *do* suffer from defective machinery; the same in the way of framing laws or governing nations; and unless the king or the law-makers "swap places" with the working people once in a while, who would see to it that these wrongs are righted?

At another time, on going into the sawroom the air was so full of dust it made me cough so that I could not have stayed there many minutes at a time. I asked one of the men what the matter was, and he said the dust-pipe was off from his machine. When I asked why it was not put on he said it filled up right away, so it was no use, and so they just pulled it clear off. I asked him if somebody was remedying the defect, and he said he did not know. The foreman said they had been fussing with it, but the matter was dropped, and he did not know what they were going to do. I traced the matter up, and was told that the large belt was loose, but they could not very well fix it until they shut down at night. I then explained to the men who were suffering, and asked them to get along as well as they could. If they stopped work it would stop the work of the men ahead of them, and so there seemed to be no way but to put up with the dust. I got over in the morning as soon as the grip would let me go, but they were *still* suffering from dust. I was told the belt had been repaired the night before, but the room got so cold during the night that the glue did not hold. On a similar occasion before this, some coal-oil lamps had been kept burning by the night watchman, so as to keep the glued joint warm enough to have it dry thoroughly. I inquired why the lamps were not used the night before, but I was told it was because nobody looked after it. I should have looked after it, probably, had I not been "under the weather." Now, I hope no one will feel hurt when I suggest that there seems to be a sort of indifference all around in regard to these necessary details. If the men who are obliged to bear the dust had had a chance, I am sure they would have put in vehemently to have that belt looked after so there could not be any failure.

Now please do not think, dear reader, that I attend to *all* these things as I might do and as I ought to do if I really loved my neighbors and my fellow-workmen as myself. I need exactly the stirring-up that Mark Twain's piteous appeal in that book gave me; and the whole wide world needs stirring up in just this way. Jesus came and lived and *died* to exhort men along this very line. He said not only in words but by acts, "Not to be ministered unto, but to *minister*." Now, I know we are not all proprietors of factories; we are not all kings and princes, nor even high officials for the government, nor superintendents of railways or other institutions; but we usually get into these high and honorable places because we are faithful. The Bible says so. "Thou hast been faithful in few things, I will make thee ruler over many things." We are none of us as faithful in the little things as we ought to be. The little incidents of everyday life will illustrate it. You can not hang up a bright tin cup at any well or spring, because somebody will carry it off — not dishonest people necessarily, but I do think they are *selfish* people. A carriageful of ladies carried off a tin cup from the well right out in front of where I am writing. They drove up, passed the cup all around, and seemed to enjoy thoroughly the water that was running freely, purposely for the public benefit. *But they carried off the cup*. Perhaps they *forgot* to hang it on the nail by the hydrant. Is not *forgetfulness* largely selfishness, when you get

Digitized by Google

right down to it? Dr. Miller says if you will punch a hole in the bottom of a drinking-cup it will not be carried off. Just think of obliging everybody to stoop over, while he slakes his thirst, to keep this stream of water away from his clothes and polished boots, just because of this very custom of carrying off the cup! Borrowing tools and keeping them is along in the same line. There are few things that make me so much care and worry as to look after our gardening-tools, especially in seeing that they are brought home. A near neighbor, and a good man—at least I call him so—borrowed my scraper last fall. I inquired about it several times, and gave orders to have it put away in our dry toolhouse; but in spite of me it has been out of doors all winter. Is this world *too full* of cares to permit anybody to look after *every* thing, especially these *little* things? Well, most people manage to find time to look after things that seriously interfere with their *own* comfort and happiness; but how many of us look after the things concerning the comfort and happiness of our friends and neighbors just as well?

Now, there are a great many paupers in this world, but there are very *few* princes; but I honestly believe there ought to be more. There ought to be more girls and women who are ready to say, with honest pride, "I am one of the King's Daughters;" and then there ought to be more men and boys who are ready to say with equally honest pride, "I am one of the King's Sons." If anybody asks you what king, tell him the King that came into this world, not to be waited on, but to be a *servant*. Pilate said unto Jesus, "Art thou a king?" Jesus answered, "I am a king. To this end was I born, and for this cause came I into the world, that I might bear witness unto the truth." The world may not recognize us; but, never mind; neither did it recognize the King of glory when he passed all about among humanity. When we are prompted to be selfish, and tempted to do that which is wrong and beneath the character of a *prince*, let us say in our hearts if not aloud, "No, I am a prince—the son of a King." We are told to beware of pride; but here is a place where a little more pride would do us good.

And now may be these words will strike somebody who has charge of a lot of men; or a teacher who has under his care a lot of children; or a minister who looks after and sets an example before a lot of people. Shall we not, each and all, remember every little while to (at least *mentally*) change positions with those under us? "As ye would that men should do unto you, do ye even so unto them."

ANOTHER SIDE TO "LEAVES OF HEALING."

A subscriber sends us the following, clipped from the Chicago *Interior*:

The death of Mr. Henry Walter Imler, of Fremont, Ohio, is a pathetic instance of the illusions which Dowie practices upon good and faithful men. Mr. Imler was a worthy member of our church in Fremont. He was smitten with cancer, a disease which is marked by medical charlatans as the one which offers the largest possibilities for fraud and financial bleeding. Mr. Imler was induced to submit himself to Dowie, who seems to know enough about palliative medication for his purpose; he persuaded Mr. Imler that he had effected a cure, and filled pages of his publication in heralding the case. Thus having both lined his pockets and obtained the means for inducing others, Dowie sent Mr. Imler home to die. It is no reflection upon Mr. Imler's memory that he fell a victim to such delusion. For all like cases unprincipled practitioners or pretenders lie in wait, and it is not in hopeful human nature to lend a deaf ear to assurances under such circumstances.

HEALTH NOTES
BY
A. I. ROOT

SOMETHING MORE ABOUT GRIP, ETC.

In another column I have told you of the trouble we had in finding out what the matter was with the steam-pipes, that they would not heat up. In a large factory where there is much machinery and complications of pipes, wires, etc., a great many times there are troubles that are hard to find. A great many people give up, and say, "Well, I do not know just what is the matter with the thing. If somebody else can fix it, I wish he would do so." And somebody has to do it. Sometimes it takes a good while, and takes lots of money. But the person who ferrets out the mischief, and corrects it, gets a feather in his cap, so to speak. We often read in the papers about detectives, how they work and study and follow each little clew. Well, I have been somewhat of a detective along this line all my life; but instead of following criminals, mine has been a pleasanter work, for I have followed Dame Nature, and wrested from her her secrets. Dame Nature I love, and I believe she loves me; for she has always rewarded me for my time and pains, sooner or later. I found out why the pipes did not get hot, but I fear some of my friends suffered grievously from the cold, as it took me so long to get at the mischief. When I was telling Mrs. Root about it, and describing to her the way we drenched the poor pipes with the boiling water, and then smoked them up with a kerosene torch, etc., she said it made one think of the way the doctors sometimes use powerful medicines, and even resort to surgery, while the real mischief is perhaps away off in another part of the body.

I told you about my tussles with the grip. By applications of hot water my teeth got well and sound, and the pain in my ear went nearly all away. But after the zero weather was passed, and it began to be wet and rainy once more, I caught cold again, and this time it centered in the calf of my right leg. I limped around for a few days, and then gave up trying to walk; pretty soon the pain became so severe that I had to lie down. The contrary thing would not even permit me to sit up in bed. Unless I lay flat on my back, with my leg in an easy position, the pain was almost unbearable. It was a curious thing and I began to study it. I tried all sorts of liniments, tried brisk rubbing, but none of these things did a particle of good. Electricity gave relief

Digitized by Google

so long as the current was applied, but the pain came back promptly as soon as we stopped turning the crank. By the way, there are a lot of such remedies. They may give one a little respite, but they confer no permanent benefit. More than forty years ago I took the agency for an electric apparatus for the cure of diseases; but I never sold a machine, because I was very soon satisfied that electricity gave no permanent benefit; and I have followed all sorts of electrical appliances from that day to this, and I am still of the same opinion. Of course, the pain in my leg was not always alike. Sometimes it went away so I could walk around quite well. Then, again, it came on quite unexpectedly. It behaved so much like the pain in my back after I had that "crick" that I began to connect the two. Yes, you may be sure that I prayed about it all along, and I prayed with faith—not that I might have relief from pain, so much as that the great Author of *all* life might lead me to understand better that I might teach others, and teach them truth; and my prayer was answered. Inasmuch as the hot water in my nostrils, described and figured on page 104, cured my tooth and ear ache, it one day occurred to me it might possibly have some effect on the painful and swelling limb. I took perhaps two quarts of water, as hot as I could bear it, through my nostril. I sent it with force enough so a part of it came through into my throat. When the stinging sensation, something like strangling, became too severe, I raised my head enough to give less force to the stream of water. In a minute or two the respiratory organs and the organs of the ear that had been affected became warmed up, so there was quite a discharge from the nostrils and throat—that is, by sneezing and clearing my throat—and the heat was sufficient to induce considerable perspiration;* and, sure enough, my leg was free from pain. After having sneezed and expectorated, I would feel well enough to go over to the factory and read my letters. Mrs. Root laughed when I told her I could cure my *leg* by applying hot water to my *nostrils*. The neighbors laughed. I presume they thought I was a sort of hot-water crank. Yes, and the doctor laughed (for I had called the doctor in to know if it could be inflammatory rheumatism that was crippling me); but after I showed him my apparatus, and gave him my explanation of the matter, he owned up that I was *probably right*. He said a great number of his patients had been troubled with the grip in the ears, face, nostrils, and teeth. Some of them had had their teeth pulled, thinking that might help the matter; but it did no good. Others had suffered excruciatingly, and finally an abscess or something of that sort had formed in the ear or nostrils, giving no relief until it broke and discharged this foul matter. He said, by the abundant and free use of water, and by keeping the passages open between the ear, nostrils, and throat, he felt sure such troubles might be prevented.

* Sometimes the hot water brought tears also, from the eye nearest the trouble: but they were not tears of sorrow, for with the tears came freedom from pain.

The trouble in my leg was, without question, neuralgic pains that had their origin in the organs of the head. Perhaps the crick in my back, a month before, had served as a sort of communication with the leg; and in my case the grip had confined itself *entirely* to my right side. Now, what sheer folly to put liniments, electricity, plasters, or any thing else, on the *leg*, when the real trouble is in the *head!* I think I have heard somewhere of curing bruises on one's heel by putting a plaster on the top of the head, and you see I have been getting pretty near to it.* I do not know but some of our medical friends will think I am taking a great deal of liberty in presuming to teach; but I believe the more sensible ones will tell me they have had many cases quite similar. There is this comforting thing about the hot-water treatment: After you get well you know you have not injured some other organ of your body with some powerful drug that perhaps did not hit the spot at all.

I hope that this little story may help somebody else out of similar troubles, and give relief to suffering. I have had several communications in regard to the vapor-bath treatment. It is probably right along in line with what I have said. Of course, the hot-water spray I have described takes much less time and trouble; for five minutes is plenty of time to rinse the nostrils thoroughly after you have the apparatus rigged.

Since the above was put in type I find the following on a scrap of newspaper:

> The famous Dr. Salisbury frequently made the statement that, if he were to be deprived of all means of cure except one, he would choose hot water, thus proving his right to be called a wise physician.

How refreshing it is to discover that great (?) minds usually run in parallel channels!

ORIGINATING NEW VARIETIES OF STRAWBERRIES AND POTATOES.

On page 148 I said you might grow a whole acre of seedlings, and not find any thing better among the lot than the potatoes and strawberries we have already. Friend Cook, who advertises potato seed in the same issue, thinks I put it too strongly, and perhaps I did. I wish those who have furnished a valuable potato or strawberry for the people would correct me if I need correcting. Friend Manum has given the world a valuable potato, and he has been at work at it a good many years. I

* In the case of the pipes, the cause of all the trouble was more than 100 feet away from where we had been fussing with lamps and hot water all day long; and the neuralgic pain, where I had been fussing with liniment, hot water, rubbing, etc., had its origin in nearly the most distant point in my whole body. Perhaps I should add that, during all this time, there was more or less of a dull pain in that ear. It felt somewhat stopped up, and was more or less deaf, although it had so nearly recovered I had thought but little about it.

Digitized by Google

wish he would tell us something what the chances are. If you have seed to commence with, from some of the *best varieties known*, of course this should make a difference; and when one does succeed he confers a lasting favor on the whole wide world. The man who gave the Concord grape, by that one stroke supplied the world with a beautiful, wholesome fruit at a price that was never dreamed of until the Concord became known. So it is with other things. It is a grand work to engage in—working for new and better varieties; but whoever starts into it should have a fair understanding as to what his chances are.

SUB-IRRIGATION IN THE OPEN AIR.

All attempts in this direction, or nearly all, so far as I can learn, have been mostly failures. For greenhouse benches, where we can control the amount of water applied, and where rain is kept off by the sashes above, the plan is all right; and one might suppose it would work all right in the open air in California and other climates; but the California *Cultivator* decides it is a failure even there. Irrigation of any kind should be in sight, so you may know what you are doing. Another thing, the water should not be down too low. Here is a suggestion from the above publication, and one that I feel sure will work for strawberries and other garden stuff where the roots are near the surface:

Where plants are set in close rows and are not very deep-rooted, but want water often and in moderate quantities at a time, lay a line of common drain tile with backs flush with the surface between the rows. Through these one can run water so that it will wet each side for a foot or two and moisten sufficiently up to the surface, yet without making the top soft enough to bake.

In order to make the above plan work, your ground must be nearly level, else the water will all run down to the lower end without wetting the plants where it starts in. The joints in the tiles will permit you to look down through and see what the water is doing; and when heavy rains come unexpectedly, these same tiles will act like surface drainage. You know I have for years declared that, when we had a great abundance of rain, as was the case last fall, our ground should not only be underdrained, but it should be surface-drained, and these tiles laid just below the surface of the ground will make the best kind of surface drainage. Of course, all the cultivating must be by hand-tools. If you are growing strawberries, when it is desirable to put something else on the ground to get the usual rotation of crops you can easily take up your tiles, prepare your ground thoroughly for some other crop, and then put your tiles back again if you want them.

A NEW TRICK IN LAYING TILES FOR UNDERDRAINS OR OTHER PURPOSES.

This new invention (for I think it is worthy of being called such) will apply to laying tiles for sub-irrigation or for any other purpose. In fact, whoever has dug ditches by hand, and laid the tiles, has doubtless been disappointed when standing at the end of his ditch, and looking up or down the line of tiles just before they are laid to cover up, to see so much "crookedness." I have actually spent more time than I could really afford to in dressing out the bottom of the ditch with the proper kind of scoop to make the tiles lie with an even grade and in a straight line, both up and down and sidewise, to find my careful work, when reviewed from the top of the bank, look more like a worm fence, both up and down and sidewise, than like tiles laid as the books and papers direct them to be laid. Some of you may say it does not matter, if they carry the water all right. But they *don't* carry the water all right. If you have ever had occasion to take up a line of tiles, and have seen how the mud accumulates wherever there is a little bend downward, you will realize the importance of having tiles laid true and on a line. Well, this new invention consists in having a smooth straight round pole that will just slide through the smallest of your tile. This pole may be six, eight, or ten feet long — the longer the better if you can keep it straight. Have a small stout ring in one end, and an iron hook to catch in the end to draw it along. Lay your tiles with this round wooden rod inside of them, but do not pull the rod out until you have packed the dirt all around your tiles so they will stay in place. Now catch hold of the iron ring and pull the rod along, slipping on more tiles, and so on. In this way the joints match exactly on the inside, where you want them to match; and your tiles strung on this rod are just as straight as a string can be stretched—that is, if your pole is straight. A piece of gas-pipe perfectly straight, and of the proper size, is just as good as the pole, only it is rather heavy to handle. I saw this illustrated in some periodical; but I actually can not give credit just now, for I have forgotten where I saw it. If somebody will tell me where it was first pictured and described I shall be happy to give credit.

SOY BEANS IN KANSAS.

I take the following from Bulletin No. 24 of the Kansas Experiment Station, Manhattan, Kan.:

The Kansas Experiment Station has been growing the soy bean for the past ten years, starting with a small patch, and increasing the area until last year 35 acres were grown. It is a good drought-resister, is not touched by chinch bugs, and the beans are richer in protein than linseed meal. With sufficient moisture to germinate them, a crop can be grown after wheat and oats are harvested. In 1896 the yield on ground after wheat was 8 bushels per acre, in 1898 6¼ bushels. With linseed meal at $25 per ton, these crops after wheat would be worth $6 and $4.68 per acre. When planted earlier in the season, the yield of soy beans is from 10 to 20 bushels per acre. The soy bean not only furnishes a crop rich in protein, but at the same time enriches the soil. Henry Rogler, one of our graduates, reports an increase in large fields of 5 bushels of wheat per acre on land where soy beans had previously been grown, over land that had not been in soy beans.

The point that interests me especially is the last sentence in the above. You not only get a crop that pays, but your land is better off to the extent of five bushels of wheat per acre after the crop is taken off and sold. The same bulletin gives the results of feeding soy beans to pigs. It tells how to grow and harvest the crop. Our Ohio Experiment Station agrees, I believe, with all the above.

Digitized by Google

HOW TO GET EXTRA-EARLY POTATOES.

The following is from a press bulletin from the Kansas Experiment Station:

The Horticultural Department has been experimenting for two years on the methods of hastening the growth and maturity of early potatoes. On Feb. 23, 1897, tubers of White Ohio, Beauty of Hebron, Early Harvest, and Carman No. 1 were set in shallow boxes with the blossom ends up. They were filled around with sand, leaving the upper fourth exposed, and the boxes placed in a room of rather subdued light, and a temperature of 50 to 60 degrees. Vigorous sprouts soon began to push from the exposed eyes.

On March 22 the potatoes were planted in furrows, the tubers being removed carefully from the sand, and planted in the same position in which they stood in the box, and 14 inches apart in the row. They were not cut, but were kept entire. Similar parallel rows of each sort were planted of whole tubers selected from potatoes taken from the storage room, and unexposed to light till planted.

As they grew, the sprouted potatoes took the lead from the start in vigor and strength of top; and both lots of whole seed kept ahead of cut seed of the same varieties. June 1 the sand-sprouted lots showed excellent young table potatoes while none of the others were yet large enough for use. A week's difference was apparent in the two lots. On June 16, the sand-sprouted potatoes were still ahead in size, though not as much as at the first examination. At the final digging, July 24, the sand-sprouted lots showed better tubers, and 10 per cent larger yields, than the others.

In the spring of 1898 a similar experiment was carried on, using four other varieties; viz., Triumph, New Queen, Thoroughbred, and Early Six Weeks. Two methods of treatment were also employed. The lots were divided, one half of each lot being placed in sand under the conditions employed the year before, and kept moistened, the other half of each lot being put in open boxes, and placed in a light dry room with a temperature averaging about 50 degrees. March 26, all lots were planted. The tubers that were placed in sand had strong vigorous sprouts, and were nearly all rooted. Those in the open boxes were beginning to sprout, but of course had thrown out no roots. The sand-sprouted lots took the lead in growth, and furnished table potatoes several days in advance of the lots sprouted in open boxes, although the latter were ahead of the lots planted at the same time from the storage-room.

Whole tubers sprouted in rather moist sand, and planted about the 25th of March, give the best results, and produce table potatoes seven to ten days earlier than the same variety planted at the same time but not so sprouted.

Such a difference in time is of great importance to the grower, whether the crop is for the home garden or market. The gain of a week's time will well repay the efforts required to produce the extra early crop.

W. H. HALL.

The above is simply a modifiation of the method employed in the Island of Jersey. Please notice the potatoes are set in moist sand about a month before the usual time for planting. We have failed several times by getting them into the open ground too early, so the potato-plants got a setback by being nipped by the frost. In our locality I do not believe it will pay to put them in the open ground before about the middle of April. If a frost comes, of course you can pull a little soft dirt over the sprouts—that is, if they are not too far above ground.

POTATOES THAT DO NOT SCAB — THE WHITE ELEPHANT.

I have raised the White Elephant potato, and have been acquainted with it for 18 years, and have never known it to scab, although others planted alongside were so scabby as to be unfit for use They are prolific, and fine p tatoes for the table, being a smooth white, rather long, and flat-sided. Our neighbors have all got seed of us, and have never heard of scab or a failure of crop. MRS. R. E. HAMMOND.

Saylersville, Ky., Feb. 28.

The above potato is comparatively well known; but I have never heard before that it was less liable to scab. I notice that Landreth, in his catalog, describes it as late, does best in light sand, heavy yielder. He quotes it in January at $2.70 per barrel. Has anybody else noticed this same peculiarity in the White Elephant?

COW PEAS—HOW TO CURE THE HAY, ETC.

On pages 148 and 149 I note what is said of "cow peas." I live in a section of North Carolina that was growing cow peas as a renovator of the soil, and for feed to stock as forage, before Prof. W. F. Massey left the "Miller" school in Virginia to go to our North Carolina Experiment Station. I don't know the Benson pea by that name, but there are a great variety of cow peas. Some of them mature in 60 days from planting, hence *should* mature anywhere north. Cow peas ripen very irregularly. There can always be found ripe peas and blossoms among any variety of them, as the first ripe peas appear. And if the ripe peas are kept gathered off the vines, these same vines will continue to blossom and bear peas for a long season.

They require warm weather to grow in, hence should not be planted till *two weeks* after all danger of frost has passed.

Peavine hay is obtained by sowing the peas broadcast at the rate of 1½ to 2 bushels per acre, and then plowing them in, or cutting them in with a disk harrow, without allowing them to lie in the hot sun over two hours, exposed; if you do they will not come up well. When the first ripe pods begin to show, mow your peas down after the dew and moisture have dried out. In the evening, before the dew falls, rake it into large winrows and let them remain until the next evening (unless it threatens rain; if it does, pile them in cocks of 400 or 500 lbs.); then go and cock them up in cocks, the same as other hay, 5 or 6 feet high, and as small at the bottom as possible for them to stand up well. After being cocked up for 4 or 5 days, so they have wilted, and the stems of the vines are reasonably dry, thus being air-dried instead of sun-dried, they are ready to be put into large stacks, or hauled up to the barn, but should be exposed so all the air possible will pass through them—in either event until the stems are dry enough to break when bent.

Never feed peavine hay, that has been frost-bitten, to stock. Cut when the first dry pods show, then air-dry by any plan you like. By not letting it get damp or wet after it is cut until it is thoroughly cured you will have some of the finest green or bright forage you ever fed, and all stock eat it readily; will leave other hay or forage for the pea hay. Getting wet turns it dark, and creates a dry dust among the vines and stems If left to mature peas before it is cut, the leaves all shed off and you have nothing but dry stems and vines that are tough and little good.

Goldsboro, N. C. ABBOTT L. SWINSON.

A NEST-EGG THAT KEEPS OUT VERMIN.

I believe my first hobby in the way of any sort of business was raising doves; and when some wicked sportsman shot one of my pair of doves, oh what wailing and weeping there was around our home! and I do not know but I have had a spite against sportsmen—yes, and against guns also — ever since. Well, when I got a little older I went into the egg business, and I succeeded too; and every little while through the fifty years that have passed I have felt a longing to study "chickens" once more. Well, here is something from the *American Cultivator* that took my attention strongly:

ONION-PEELING IN HENS' NESTS.

One of the best materials for making hens' nests is the outside peel of onions It will drive away if it does not destroy hen lice. These peelings, or a piece of the onion itself, ought to be always in nests where hens are sitting on eggs. The warmth of the hen's body will so scent her feathers that the lice will be glad to clear out, and the hen will be equally glad to have them do so. With a good place for rolling in the dust, under cover, so that the dust will not be turned

Digitized by Google

into mud, it is not difficult to keep hens free from vermin.

Now, in the above there is no hint of using a white egg-shaped onion for a nest egg; but it came into my mind like a flash that our White Victoria onions would fill the bill exactly. Mrs. Root says the hens would kick the onions out, and refuse to be humbugged; but if some of our nice Victoria onions are not a better imitation than a great part of the nest-eggs commonly used, then I will give up. Just try a hen that wants to sit on a nestful of white onions. If the hen does not do *her* part, I shall be mistaken. (Whenever you set a hen, always put in *one* white onion.) Well, now, friends, if in the course of time the standard nest-egg of the world should be a *white onion*, won't you all bear witness that Uncle Amos first suggested the idea?

Our Roll of Honor.

Friend Root:—I have been a subsciber to GLEANINGS since 1883, and have received "real estate" benefit from its teachings in apiculture, and especially from Home teachings. I want it to live and benefit others.
Joy, Ill., Feb. 14. W. M. MILLER.

I have taken GLEANINGS so long that I don't think I can do without it unless my bees all perish. I have been looking over my old GLEANINGS. The oldest are of 1879; but as I have been in the habit of giving them to others who cared to read on the subject after I had read them I am not certain when I commenced taking it. J. B. HAINS.
Bedford, O., Feb. 20.

I can not exactly tell the date when I began reading GLEANINGS, but I think it was in 1874, at Salem, Ind., where I resided until the fall of 1888, when I moved to Florida. I have not kept the papers, having friends who were desirous of reading them, and very few of them ever returned home. GLEANINGS all these years has been a great and shining light to me in many dark places. May its light continue to shine and grow brighter long ages after you and I are no more on earth. JOHN CRAYCRAFT.
Astor Park, Fla., Jan. 9.

Friend A. I. Root:—I think I have taken GLEANINGS over twenty years, and followed you through the *American Bee Journal*. I recollect reading about windmill, four-horse-power engine, then forty, and up to the present. I do not take GLEANINGS for information about bees, as I have none; but I like your Home talks and information about home comforts, gardening, etc. I think I can say your writings have done me good, and have helped many times to lift me out of self (in mind), and led me to think of higher and better things. I wonder how many take GLEANINGS for the above consideration. WALTER SENIOR.
Webster, W. Va., Jan. 21.

Dear Mr. Root:—I have been looking over that Symposium of the Veterans again, and I see the "25 years, more or less," takes me in also. I don't want the present, but I want to express myself in regard to some things I think I took GLEANINGS in 1880 or '81. I was then in Spotswood, New Jersey. I invented (or, rather, discovered) *one* way of imbedding the wires in foundation; that was, I think, in 1882. I took a sewing-machine needle, broke it at the eye, stuck the point in a handle, and then ran the broken eye over the wire and pressed it down. All was common, no patents. If any one discovered any thing new it was turned over to Bro. Root, and tried. Well, as a token of appreciation GLEANINGS was sent without pay. All your veterans seem to be bound to be helpful. If they have any thing that can benefit fellow-bee-keepers, they go to some trouble to give it freely.

But there is one part of GLEANINGS which is like the flashes of sunshine in a beautiful landscape; and that is Our Homes. I send GLEANINGS to my mother, over 70 years old, when we are through with it, and she enjoys reading it.

I understand you, Bro. Root, from Jan. 15th and following numbers. Those who *don't*, really miss the cream and honey of life. I send you a hearty amen! I had a brother (he is dead now) who came to Dakota, bought a quarter section of land and two yoke of oxen (stags), and went to breaking. It did not go very well. If you ever plowed with two yoke of oxen you know all about it. Somebody was concealed in the tall grass near by. Brother had great trouble. He got very angry, and it seemed as if he had to give it up; but he knelt right there by the plow, and prayed the Lord to forgive him for getting angry, and to help him. He placed all in line, and started again, and, lo! all went smoothly along, and he broke a great many acres of prairie that summer. Those who have had the experience know that there is much in the hymn, "Take it to the Lord in prayer." I can say with the Psalmist, "I had fainted unless I had believed to see the goodness of the Lord in the land of the living." "Wait on the Lord; be of good courage, and he shall strengthen thy heart; wait, I say, on the Lord." STEPHEN J. HARMELING.
Marion, S. Dak., Feb. 22.

Friend Root:—I was a bee-keeper before GLEANINGS started, and I have read nearly all the periodicals published on bee culture. The first paper I remember reading was published by H. A. King & Co., of New York, dating back to 1873, and we have one copy of that paper yet. As to the exact date when I became acquainted with GLEANINGS I don't remember; but I remember quite well the photo of yourself with Blue Eyes sitting on your knee, and when you signed yourself "Novice" I have been a subscriber nearly every year since, and have followed its teachings all the way through to the present time. "Our Homes" I have been interested in, and have read and practiced its teachings. While we have been reading and practicing what GLEANINGS has taught, we never met its editor until the Omaha convention, at which time we saw other old-time writers such as Dr. Miller, G. W. York, Dr. Mason, and others. We are still bee-keeping, and like to work with and handle bees, as well as when we first commenced. J. M. YOUNG.
Plattsmouth, Neb., Jan 10.

Dear Mr. Root:—I think it was in 1871 when Mr. Axtell and I began keeping bees; and about two years later we began taking GLEANINGS. I well remember what a real comfort a letter from you to us about that time was, in answer to whether our bees were put up right for wintering, as we felt a good deal as if groping in the dark, though we had read every thing on bees we could hear of, reading and re-reading, and committing to memory directions given in books and papers. We have taken GLEANINGS ever since.

GLEANINGS has been a great help to us in many ways besides in helping us to understand bee culture. The Home Papers have been a source of comfort and strength, and generally the first read.

The first few years the honey crop was short, and bees did not pay largely; then for about ten years we had scarcely a failure; but the past few years honey crops have again been poor, and some years would be almost a failure except for the benefit to my health in working out of doors, and perhaps the benefit of bee-stings, as I have had some days as many as ten to fifty.

I have hardly felt like calling any year a failure, because of the benefit the bees have been to my health and happiness.

The largest amount secured in any one year was in 1882—39,000 lbs. of comb honey, except about 500 lbs. of extracted, from 180 colonies, spring count, and increased to 298. The following winter was very hard on bees, and we lost over 100 colonies, which taught us to go back to the Quinby mode of giving room under brood-frames, and packing hives with chaff, which will give successful wintering out of doors if the honey is good, and large entrances when wintered in cellar. MRS. L. C. AXTELL.
Roseville, Ill., Mar. 2.

Just now the men seem to have the floor. Although not a veteran, I am a subscriber, and I do enjoy reading GLEANINGS. In reading of your wheel-trips I was tempted to buy a wheel, and have been riding two years, and like it. At first I thought I was too old to ride one, as I was born in 1838. I do errands on it, make calls, and even go to church on it. Women have said to me, "I glory in your wheel." I can blame it all on Mr. Root. I thought he was not going to have *all* the fun in his old days. Sister bee-keepers, where are you? Let us not let the men have all the say. Success to A. I. Root and GLEANINGS is my wish.
Bilmond, Ia., Feb. 27. MRS. J. H. ALLISON.

Digitized by Google

Do It Yourself.

Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nut-meal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.** Address **The Frank Machinery Co., Buffalo, N. Y.**

In writing, mention GLEANINGS.

Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Untested queens in April, $1. Tested, $1.50.
J. D. GIVENS, Lisbon, Texas.

WRITE FOR SAMPLE STAY
AND FULL PARTICULARS ABOUT OUR
$10 MACHINE
Wholesale price where we have no Agent. Agency for nothing.
Bowen Cable Stay Fence Co.
Box 62, Norwalk, O., U.S.A.

A Great Mistake

it would be to purchase an Incubator or Brooder without first getting a copy of our 148-page catalogue. It costs 6c. but is worth a dollar to you for the poultry information it contains, to say nothing of the pointers it gives you. Send for it at once.
DES MOINES INCUBATOR CO., Box 503, Des Moines, Ia.

HATCH CHICKENS
BY STEAM—with the simple, perfect, self-regulating
EXCELSIOR INCUBATOR
Thousands in successful operation. Lowest priced 1st-class hatcher made.
Circulars free. Send 6c. for Illus. Catalog.
GEO. H. STAHL, 114 to 122 S. 6th St., Quincy, Ill.

In writing, mention Gleanings.

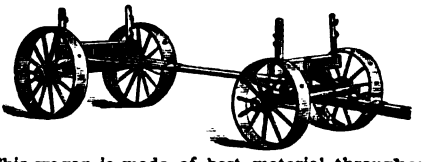
Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc.

The man who already has a wagon may have one of the low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad-faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 95, Quincy, Illinois, for their catalog; which fully explains about these and their Electric Handy Wagons, Electric Feed-cookers, etc.

Farm Wagon for only $19.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19.95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

In writing, mention Gleanings.

ALHAMBRA BLACKBERRY. Earliest blackberry known. Plants 35 cts. per dozen; $1.25 per 100; $10.00 per 1000. **Edw. Smith, Carpenter, Ill.**

EARLIEST QUEENS reared in U. S.; increased facilities for promptness; all queens guaranteed. Write for prices from half dozen to 100
J. B. CASE, Port Orange, Fla.

INCUBATOR QUALITY.

When it comes to quality in an incubator, which embraces construction, working ability, etc., there is nothing that will equal

The Prairie State.

Two hundred first premiums in all kinds of competions with all kinds of machines. Send for catalogue.
PRAIRIE STATE INCUBATOR CO., HOMER CITY, PA.

WE TRUST THE PUBLIC

and send them our Incubator on trial. No man should buy an incubator and pay for it before giving it a trial. You pay not a cent for ours until you have given it a thorough trial. It's made so that nobody can fail with it. A child can run it with 5 minutes attention daily. It beat all others at World's Fair, Nashville and Omaha Expositions. The best catalogue and treatise on incubation published, sent for 5 cts. Plans for Brooders, Poultry Houses, etc., sent upon receipt of 25 cts.
Von Culin Incubator Co. 8 Adams St. Delaware City, Del.

In writing, mention Gleanings.

SUCCESS OR FAILURE

often depends upon the start. If you start right you have a better chance of success. To start right in the poultry business the buy **Reliable Incubators and Brooders.** They work automatically and cannot fail of good results. Our POULTRY BOOK, 228-pages, big, tells all about them and a thousand other things you should know about poultry. We send it for 10 cents. RELIABLE INCUBATOR & BROODER CO., Box B 49 Quincy, Ill.

Digitized by Google

SUPER SPRING WEDGES.

The new springs for side compression in our supers are not quoted in the catalog. We have them in two lengths for the shallow and deep supers. Price 1c each; 75c per 100; by mail, 10c per 100 extra.

NO. 2 SECTIONS.

We are so much oversold on No. 2 sections that we have ordered over half a million from another manufacturer who has a surplus. Even with this help we shall not be able to furnish as many of this grade as are ordered.

NEW EDITION OF THE A B C OF BEE CULTURE

The present edition of the A B C is almost exhausted, and will be all gone before we can get a new edition from the press. We expect to issue a new edition during the summer. It is likely to be July or August before it is completed. In the meantime let dealers order sparingly, to make the present edition last till the new is ready.

MAPLE SUGAR AND SYRUP.

The season is favorable in this vicinity for maple products; and while we are not handling them to the extent we have sometimes done in the past, still we can supply those who have been accustomed to send to us for sugar and syrup. Choice syrup will be $1.00 per gal.; $9.00 for 10 gallons. Sugar at 10, 9, and 8 cts. per lb., according to quality; 50-lb. lots ½c less; barrel lots of about 300 lbs. 1 ct. less.

ADVANCING PRICES.

The upward move in prices of all metal goods is something phenomenal. Inside of three months the price of tin plates has advanced fully 25 per cent, and this affects the price of all articles of tinware. The advance in wire and wire nails has been even greater, figured in per cents, and the end is not yet. This advancing movement may be expected to continue for some time to come, for the lately formed trusts have every thing their own way, and competition will require many months to get started. The trusts are not primarily responsible for the advancing prices—they are simply taking advantage of a condition. Prices on iron and steel had gone so low that many old-time establishments for turning out iron products had to shut down because they could not compete with more modern plants where the cost of production was reduced to a much lower point. The enormous increase in demand in recent months has used up the surplus so that there is an actual famine in steel billets, and the plants now in operation running day and night can not make them in the quantities required to supply the demand. Supply and demand are the source of the upward move in prices, and the trusts will see to it that prices stay up as long as possible. This condition is not without its blessings, for thousands of workingmen have had their wages raised voluntarily by these large corporations, who are thus sharing their prosperity with their workmen.

THIN-BASE FOUNDATION.

The new foundation that is set forth in this issue we call "thin-base" to distinguish it from the former products of drawn foundation and deep-cell foundation, as well as to emphasize the particular feature that we've sought to accomplish. It is made in squares just right to fill a pound section, and there are 96 of these pieces for a 4¼ section in a pound box. We can furnish it also for the 4x5 or 3⅝x5 when so ordered. The cost of experimenting has been very heavy, and the cost of making, for the present, is no small item. We are furnishing the power and the sheeted wax, and paying Mr. Weed 50 cts. a pound for the first 1000 pounds, so that we are hardly getting more than cost when we sell it at $1.00 a pound. You can afford to pay this price for it in limited quantities to test; and if it proves valuable, as we have every reason to believe it will, the cost of making can be greatly reduced by a larger expenditure in machinery to turn it out more rapidly, and the price may be reduced to 75 cts., but not this season. We will furnish 7 or 8 pieces put up in a section, inside a carton, for 15 cts postpaid; 24 pieces, prepaid, for 40 cts.; 48 pieces, prepaid, for 75 cts.; 1-lb. box, prepaid, for $1.25. By express or freight with other goods, $1.00 per pound, in lots of ¼ pound or more We have in stock, ready to ship at once, about 200 lbs., and are turning out over 20 pounds a day, so that we hope to be able to supply it as needed, and we trust a large number will get sufficient to experiment with, and report after the season is over. The larger the number who do so, the more valuable the result in determining its real value and worth.

Special Notices by A. I. Root.

WANTED—SEEDS OF HONEY-PLANTS.

We are just out of fresh seeds of both spider-plant and figwort. If any of our readers have some seeds that have been recently gathered, so that they will be sure to germinate, we shall be glad to hear from them.

OUR NEW SPRAYERS.

Since advertising these at 60 cts. for the tin ones, and 25 cents more for the same made of brass, I have been a good deal surprised to see that three-fourths of our customers pay the 25 cts. extra, and take the brass one. And I think this is really a wise thing to do, for the brass one ought to last a lifetime Another thing, although there is no end to these makes of cheap spray-pumps I believe ours is the lowest in price of any made all of brass; and at only $7.50 a dozen there ought to be a big demand for them during the coming season.

SOJA BEANS.

We have a nice lot of fresh seed. Pint, 10 cts.; peck, 75 cts.; bushel, $2.50. If wanted by mail, add at the rate of 8 cts. a pint for postage. I believe our experiment stations are all giving favorable reports of this new leguminous plant, and several have written us that the beans picked green, or even cooked dry, are not only sustaining, but really good, when properly cooked. This bean contains so much oil that no fat pork need be added when cooking. We also have a good stock of American coffee-berry, which is a small variety of the soja bean. Price: ½ pint, 10 cts.; pint, 15 cts.; quart, 25 cts. Its value for coffee need not be discussed now, for almost everybody has tried it, and, I might say, almost approved of it.

SEED POTATOES.

At one time I began to fear that potatoes were going to be low again this spring; but since the big freeze in February prices have gone up steadily, and at the present writing good table potatoes are quoted in the Cleveland market at from 60 to 65 cts. per bushel. This, you see, is about the same as our lowest prices on seed potatoes—$2.00 a barrel. As a consequence we are sold out of Carman No. 1, Mills' Prize, and State of Maine. Of the Monroe Seedling and Rural New-Yorker we still have a few left at $2.00 a bushel. White Triumph, Early Ohio, and Burpee's Extra Early, are also gone; but we have a very good stock of the following: Bovee, Thoroughbred, New Queen, Carman No. 3, and Manum's Enormous. For prices see catalog, which will be sent on application.

SORGHUM FOR STOCK; BEETS; STRAWBERRIES; CEMENT FLOORS.

The above is the title of a valuable little book by our veteran institute worker Waldo F. Brown. Price 10 cents. The article on cement floors is worth the 10 cents ever so many times over. It tells how to make substantial cement floors for stables, pigpens, sidewalks, around the well, or anywhere else. The directions are so plain that any one who owns a home ought to be able to do the work himself; and he tells you how to make a substantial floor at a comparatively small expense for material. A good many masons who undertake to do this kind of work waste material, and do not get a good job then, as I happen to know by experience. If you are going to do any work of that sort, or even have it done, this booklet may save you dollars.

The article on growing sorghum for stock, and also the one on growing beets, may be equally valuable. The directions for growing strawberries for home use are up to the very latest teachings, and it is boiled down into a small compass. As I read it through I kept saying to myself all along, "There, that is exactly as I would advise." May be friend B. will not feel

Digitized by Google

greatly complimented at this; but if you will follow his instructions you certainly can grow strawberries almost as cheaply as you can grow potatoes. It may cost a little more to harvest them, but the children around almost any home will look after that part of it. We can mail the book from this office for 10 cents; or anybody who sends us a dollar for GLEANINGS can have the little book free of charge if he will just say so when he sends the dollar.

LEAFLETS ON GROWING CERTAIN CROPS.

Where a great many people are asking the same questions about different things, say sweet clover, cow peas, soja beans, etc., we have been in the habit of having leaflets printed in order to answer questions. About this season of the year there is always a great demand for these leaflets. I find we have at present in stock leaflets or circulars in regard to alfalfa, crimson clover, sweet clover, dwarf Essex rape, soja beans, coffee-berry, the new onion culture, or starting onions under glass. We have also a little book on Japanese buckwheat, price 5 cents, or sent free to every one who purchases seed. We have also "Forty Years in Growing Sweet Potatoes," by Waldo F. Brown, price 10 cents only; or sent free to every purchaser of sweet potatoes or plants, or to any one who sends a dollar for GLEANINGS, mentioning at the same time that he would like the sweet-potato book. If you want larger books on growing crops, look over our book-list in our seed catalog.

KIND WORDS FROM OUR CUSTOMERS.

I am glad you did not stop my paper, as I like it very much. I believe the millennium would not be so far off as it is now if there were more such clean and nice papers as yours. Thanks for the stand you are taking against tobacco, and also the humbug medicines, and all sorts of swindles. H. J. BROMWICH.
Angola, N. Y., Feb. 24.

Inclosed find order for GLEANINGS and *Farm Journal*. Continue subscription from date of expiration of last subscription. Although I can not be classed as a veteran, yet I have not missed a single issue since I first learned of GLEANINGS. To say that I appreciate it is but to say that I have all the volumes bound in half morocco. H. C. KLINGER.
Oriental, Pa., Feb. 14.

Your notice is at hand in regard to advance subscription for GLEANINGS. I can not afford to lose it, so I am going to make sure of it for three years, so please find inclosed money order. I may say that I like GLEANINGS very much; and, although so far away, it comes to hand very regularly. I often wish The A. I. Root Co. were not so far away.
HERBERT SMITH.
Moss Glen, Recherche Bay, Tasmania, Nov. 12, 1898.

I like your article on giving employment instead of money to the needy or improvident. I have often noticed here that those who are needy are generally those who play or drink during the sunshiny days, and make no effort to lay up a few dollars for cold or rainy days. With the exception of sick people, it is almost a waste of time to extend help to the "drones," for they soon come to look to you for assistance in time of need. CHIP HENDERSON.
Murfreesboro, Tenn.

THE NEW FENCE SUPER.

In regard to those fences bought of you last year for 100 hives, it is one of the best improvements since I began the bee business, fifty years ago. Last year I had the best comb honey I ever raised. I think bees will commence in sections quicker, work the outsides of the crate just as well as the middle, and, best of all, bees do not travel-stain the combs. Make me enough for fifty hives more, about 400. C. M. LINCOLN.
Rupert, Vt., Dec. 18.

DIVINE HEALING; MORE ABOUT DR. DOWIE.

Mr. Root:—Several years ago I lived in Chicago and attended Dr. Dowie's church, and was employed by him to finish his Tabernacle Zion No. 2. As he employs no person who is not a Christian, and no one who uses tobacco, I had not much competition, and was with him a long time. Being desirous at the time you should be healed (for I had been benefited so much by Our Homes), I sent you some copies of *Leaves of Healing*. As I never heard any thing from you in GLEANINGS on the subject I supposed you were opposed to divine healing (as many good Christians are). But on receipt of GLEANINGS this week, and reading Our Homes, I find you occupy the right grounds; that is, you are willing to be led by the Spirit. Now, Bro. R., I have prayed that the Spirit might direct me to say the right things to you.

I shall answer your article, but not in the order it is written. First, you say no person ever told you that *all* are not healed. Dear Bro. Root, from my own personal observation there is not one in ten healed, if the proportion is even that; but that does not prove any thing against divine healing. Not one in ten who hear the gospel of salvation is saved. I agree with you, Bro. R. I can not indorse Dr. Dowie in many things. The gift of divine healing was not transmitted from the apostles from age to age until it rested on Dr. Dowie, but is for *every* child of God who by faith is filled with the Spirit I can not indorse him in dispensing with means in *every* case, such as hot or cold water. When we have some simple aid that God has provided, let us use it; but *no drugs*. Dr. Dowie should not abuse the churches as he does. Christ would not do that. One great secret of success in healing is to get the sufferer to accept the Bible truth that all sickness is inflicted by *Satan*, and that it is the will of God that we should be well; that whatsoever we ask in his name, the Father will give. Thus by calling to mind the promises, and believing it is Christ's will that we should be made whole, our faith should be strong *before* we pray Expect the healing. You spoke of a "glimmer" of faith *after* praying; it should come *before* praying; then pray definitely; don't say, "If it is thy will," for in so doing we waver, and fail of healing. Dowie always lays on hands; but it is our privilege to live so close to God, by being filled with the Spirit, that he will heal any time.
Muncie, Ind. J. M. FLETCHER.

CONVENTION NOTICES.

The next convention of the U. S. Bee-keepers' Association will be held in Philadelphia, Pa., commencing Tuesday evening, Sept. 5th, and closing Thursday evening, Sept. 7th. Particulars in regard to railroad rates, etc., will be given in time. A. B. MASON, Sec.
Sta. B, Toledo, O., Feb. 27.

Blackberry - plants for Sale.

Snyder and Taylor's Prolific. The two most hardy and productive blackberries for the North. Plants from young and healthy plantations. Plants for freight shipments carefully packed. Price, $7.00 per 1000; $1.00 per 100; 1 dozen, by mail, 25 cts.

CHARLES L. TODD,
Hartwick Seminary, - - Otsego Co., N. Y.

DO YOU WANT EARLY QUEENS?

We can supply you with the choicest of Tested Italian Queens for $1.00 each. Orders filled by return mail. Safe arrival and satisfaction guaranteed.

SEND FOR PRICE LIST.

J. W. K. SHAW & CO., - LOREAUVILLE, LA.

CASH FOR BEESWAX.

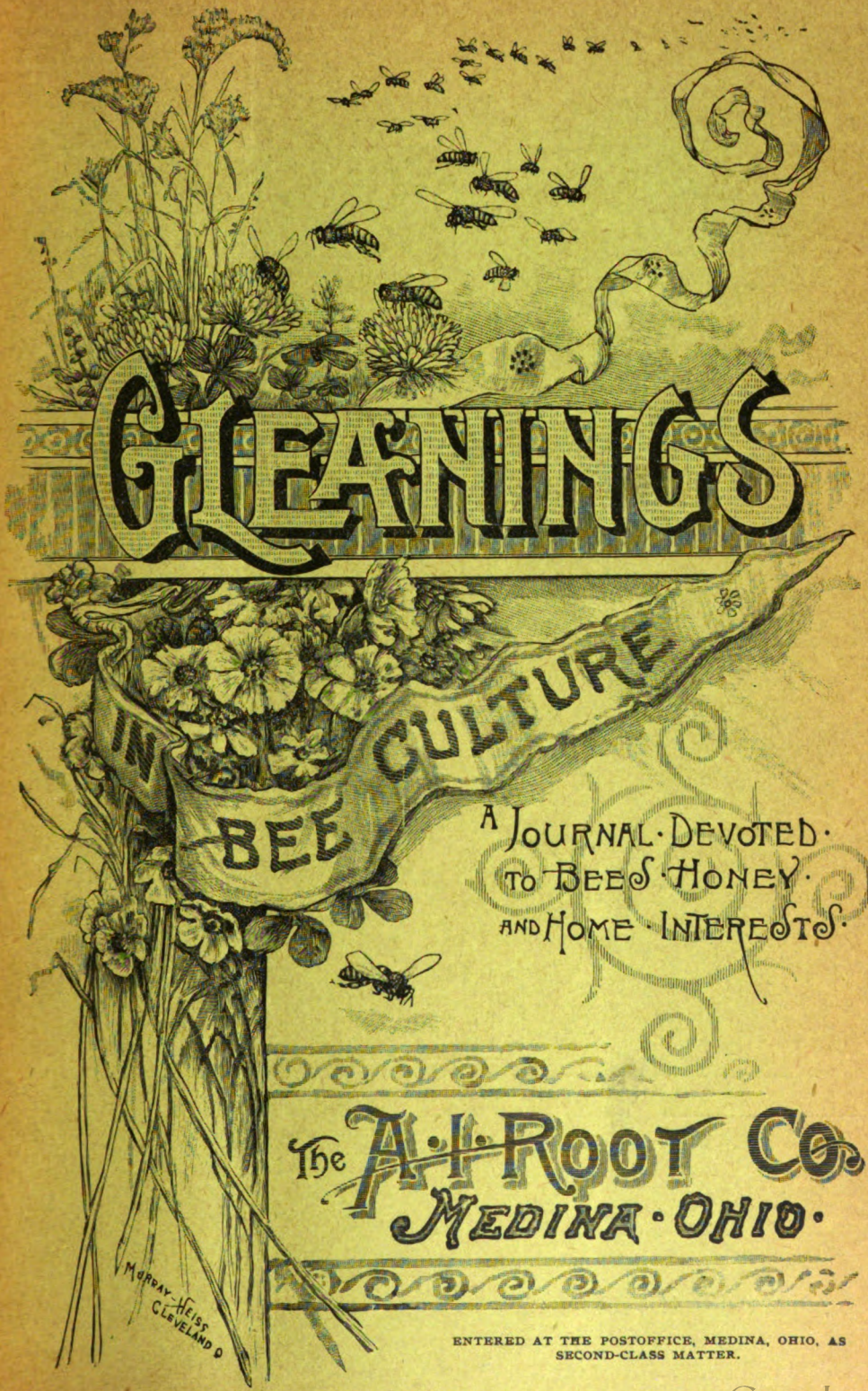
Will pay 26 cents per pound cash, or 28 cents in trade, for any quantity of good, fair, average beeswax, delivered at our railroad station. The same will be sold to those who wish to purchase, at 33 cents for *best selected wax*. *Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, Ohio.

Digitized by Google

Vol. XXVII. APRIL 1, 1899. No. 7.



ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

Digitized by Google

No. 214—Three-spring Extension-Top Carriage. Price, complete, with lamps, fenders, curtains, storm apron and pole or shafts, $65; usual retail price, $95.

BUY AT WHOLESALE

and save all intermediate profits and expenses. Traveling men's expenses, agents' and dealers' commissions, losses on bad accounts, etc.

We have no Agents.

We sell to you direct from our factory at wholesale prices. **We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.** You may not have been accustomed to dealing this way but just one trial will convince you of its advantages. We are not dealers or jobbers. **We make every article we sell.** 170 styles of vehicles and 65 styles of harness to select from. No matter where you live, we can reach you.

No. 100—Double Buggy Harness. Price, full nickel trimmed, $17; as good as retails for $25.

We ship our goods anywhere for examination

and guarantee and warrant everything. Send for our **large Illustrated Catalogue—FREE.**

Elkhart Carriage and Harness Mfg. Co. W. B. PRATT, Secretary. **Elkhart, Indiana.**

In writing advertisers, please mention GLEANINGS.

SPRAYING

with our new patent

Kerosene Sprayers

is simple indeed. Kerosene emulsion made while pumping. 12 varieties sprayers, Bordeaux and Vermorel Nozzles, the "World's Best."

THE DEMING CO., SALEM, O.

Western Agents, Hennion & Hubbell, Chicago. Catalogue and formulas free.

In writing, mention GLEANINGS.

$26

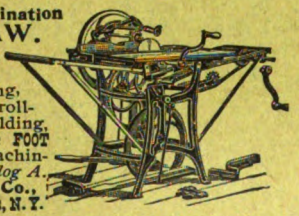
REAL BARGAINS

Road Wagons at $16.45
Top Road Wagons at $22.70
Top Buggies at $26.00

Surries $43.50; Phætons $37; Spring Wagons $29; Single Harness $3.75; Farm Harness $12. Also Carts, Saddles and everything in the vehicle line at lowest **wholesale prices.** All correct in style, quality and workmanship. Buy direct from factory. Save dealer's profits. We sell one or more as low as others sell in car lots, and ship C. O. D. with privilege of examination. Guaranteed as represented or money refunded. Write for catalogue and testimonials ***Free.***

CASH BUYERS' UNION, 158 W. Van Buren St. B 345, Chicago

Union Combination SAW.

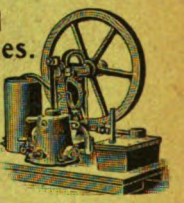


For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT** and **HAND POWER** machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St, Seneca Falls, N. Y.

In writing to advertisers, mention Gleanings.

Pierce FARM Engines.



3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
BOX 17. Racine, Wis.

From seed time to harvest, you will find use every day for the Iron Age Implements. The **Iron Age Double Wheel Hoe** weeds, plows and cultivates. Simplest, strongest.

Iron Age Crops

Every ounce of "push" on the **Iron Age Double Wheel Hoe** goes direct to the work. No power is lost. It wins the battle with weeds and saves a hired man's wages. Like all the famous IRON AGE implements it has been perfected by 63 years of constant study and successful manufacture of farm and garden implements. Farmers without it cannot compete with those who use it. The handsome **Iron Age Book for '99** describes them all. We will send it *free.*

Bateman Mfg. Co. Box 120, Grenloch, N. J.

In writing advertisers, mention GLEANINGS.

No Money in Advance!

$15.50

HIGH GRADE BICYCLES Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men Women, Boys and Girls, well made and durable.

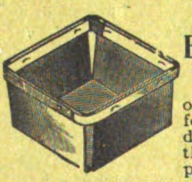
$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made. Others at $10, $13.50, $15.50, $17.50 & $19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

Fruit Packages of All Kinds.

—ALSO—

Bee-keepers' Supplies.



We allow a **Liberal Discount** on early orders. **Why not send** for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - Erie Co., Ohio.

In writing advertisers mention Gleanings.

Digitized by Google

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

VOL. XXVII. APR. 1, 1899. No. 7.

STRAY STRAWS FROM DR C. C. MILLER

"DAME NATURE I love, and I believe she loves me," says A. I. Root, p. 237. I have a very warm affection for the old lady, but I have some doubt about the feeling being reciprocated, from the merciless way in which she whacks me whenever I break any of her laws.

IN TALKING about travel-stain, one thing seems mainly left out of view. My bees fill sections and seal them snow-white; then if left on the hive long enough they darken them. They're capped white, then I suppose the bees carry up dark matter to put on the surface, but not, I think, with their feet.

THE WORD "SIC" is sometimes used to show that there is something wrong about the word after which it is written, or something wrong about the way the word is used. As used by Critic Taylor, of the *Review*, it seems to mean that the word is a good English word as used, only he hasn't yet learned it.

"IN ONE OF RAMBLER'S letters he speaks of the cherry trees of Oregon as being a great place for bee-men."—GLEANINGS, page 212.—Do all the bee-men out there roost on cherry-trees? [That's another case of "locality," doctor. The bee-keepers should be in the "locality" of the trees, not in 'em—till the cherries are ripe.—STENOG.]

IT DOES SEEM as if that thin-base and thick-wall business, p. 218, was a step in advance, but I'll not gratify the editor by saying so. A man who calls a worker "he" ought not to be encouraged. [Yes, I am satisfied that the new thin-base foundation is going to solve the problem of no gob in comb honey. The work of experimenters in the past all points in the same direction.—ED.]

J. E. CRANE, p. 214, is in line mainly, but not entirely, with Cheshire. When it comes to the rock-bottom question, "What causes the dark color in combs?" they are radically apart. Mr. Crane says, "The brown cocoon is left, and gives its color." Cheshire says the color comes from the undigested contents of the bowels of the larva being plastered on the wall of the cell. Both agree that the dark color primarily appears in the cell where a young bee is reared.

IN ORDER to break the news gently, I may say that I'm getting ready to report a case of bad wintering. I'd give $50.00 for a bright day at 50° on or before March 20. *Later.*—March 20, 12° above zero! [I am afraid there is many a bee-keeper in your predicament. This continued cold weather during February and March scares many—at least puts them in a position so that they hardly know what to expect.—ED.]

MR. EDITOR, if you get *Apis dorsata* here, please keep her chained until you *know* she can be domesticated, and will not merely use up nectar that we need for our hive bees. [I do not worry about *Apis dorsata* taking up the nectar that would otherwise go to our hive-bees; neither do I fear that there will be any other form of disaster follow their introduction. If they are migratory, and appear incapable of being hived, I can not see even then that they can do any harm.—ED.]

HE, SHE, OR IT? You may "he" the worker all you like, but I prophesy that in ten years "Stenog" will have instructions to change to "she" every "he" of that kind sent in. [Why is not *it* better than the other two? Functionally the worker-bee is not capable of reproducing its own kind—never was, and never will be. Indeed, it has been styled, for ages, a "neuter." Then why not call it *it*, and thus avoid either horn of the dilemma. There seems to be about as much good authority for *he* as for *she*, and no objection to *it*.—ED.]

W. S. PENDER says that, instead of putting sheets of foundation in the usual way, he cuts the sheets in two and hangs it t'other way, and then it doesn't stretch. Does that mean it stretches more readily the way it has been already stretched? [It is true, I think, that foundation stretches less when hung the opposite way to what it is ordinarily supported, than when it is fastened in the usual manner,

Digitized by Google

We are just planning to reverse the hang of the cells on our rolls, because we know it will be an improvement to have them the other way.—ED.]

IS THAT SOY BEAN, p. 239, worth any thing for honey? and is it the thing that is used to make flour that diabetic patients can use? [Yes, doctor, the soy bean does produce honey; but, as with many other plants of that class, sometimes the bees work on it and sometimes they do not. All of the leguminous plants, as a rule, are honey-producing. In the Old World the soy bean is much used for food; and just now attention is being turned to it in this country. Cooked green, like green peas, they are said to be delicious; but, to tell the truth, I have never tried them in that way.—A. I. R.]

FOUNDATION made on the Rietsche press will not stretch at all when brood-frames are filled without wiring, says M. Devauchelle in *L'Apiculteur*. R. Pincot says the same thing in *Bulletin de l'Aube*. The explanation is that the wax, not being sheeted, has its particles take their natural places on cooling, while the stretching on the cylinder weakens the foundation, and leads to stretching and breaking down. [Foundation made on the Rietsche press, as it will be made by the average bee-keeper, will be much heavier per square foot than that ordinarily made on rolls. In proportion as it is heavier, in that proportion it will offer a greater resistance to stretch; but weight for weight, per square foot, I can not believe it is any better than the ordinary rolled foundation.—ED.]

SO, MR. EDITOR, you were surprised I did not find out how much hotter boiling honey was than boiling water, page 233. Now look here. When *you* couldn't find out—*you*, at the place thermometers come from, you at the fountainhead of temperature, the place whence radiate light and heat, what could you expect from a lone, defenseless, private bee-keeper, away out in the wild West? You oughtn't to hint at such a thing from me, although you might expect it from an ex-experimenter. [In spite of the fact that we once had a big stock of thermometers, we did not have on hand any that were more serviceable than those you have right in your own house. But I found out more than you and Taylor, at all events.—ED.]

ON READING that bright way of straightening tile, p. 239, and the nest-egg business, p. 241, it made me feel sad to think A. I. Root rode the bee-keeping hobby so fiercely that it threw him off. If he had been content to ride more slowly, he would now spend more of his time thinking up bright things for bee-keepers, instead of nosing around in tile-drains and hens' nests. [Now, doctor, that is real mean of you to talk about your old friend in that way. Bee-keepers can not live on honey alone; and by the way the rest of you keep discussing and arguing about this and that in bee culture (that has been discussed for forty years), I should think you would be glad to have somebody, who is able to think up bright things, look after the interests of bee-men and their families outside of the regular bee-business.—A. I. R.]

THAT MICHIGAN LAW, p. 233, reads a little loosely in two spots. Does section 1 mean the governor shall appoint a man of his own selection when the bee-keepers recommend him to make such appointment (as it reads on the face of it), or does it mean he shall appoint the man recommended by the bee-keepers? In section 3 it isn't as clear as it might be, of what the inspector is to be "sole judge." [It does not seem to me that it would make any practical difference whether the governor appoint the man recommended by bee-keepers or whether they appoint the man themselves. While there is a slight difference, so long as the selection meets the approval of both parties I would let the bill stand as it is. There is hardly any law (and I speak advisedly on this point) that is perfect in its wording.—ED.]

ON READING that reply to H. K. J., p. 230, I am moved to ask, merely as a question, with my hat off and a most apologetic bow, whether one good time to Italianize might not be about the time many new governments are formed and new rulers inaugurated, say about the middle of the honey season. [Yes, that is a good time to Italianize; but that time of year is very limited—generally not more than two weeks; and if one wants a queen he is quite liable to want her outside of that limited time. If a colony were working in the sections, and doing nicely, I would not think of disturbing their good work by attempting to introduce a new queen-mother. And then, is it not true that introducing young queens before the honey-harvest will have a tendency to keep down swarming, providing that queens removed are two years and over in age?—ED.]

"IF A SCIENTIST boils his foul-brood germs in beef gelatine, or pure-culture fluid, the specific gravity of the gelatine will be about the same as that of honey," says the editor, p. 234. I'm afraid that won't help us. If I am correct, the spores were heated *to 212°*, or else heated in culture-tubes which were kept in boiling water. I'm off the fence, standing straight up beside Bro. Taylor. Whenever I see—and I doubt if I ever shall see—sufficient reason for it, I'll take to the fence again, and then Bro. Taylor will make unpleasant remarks about my hasty change of opinion. Let's be thankful that the shorter boiling will do, even if Bro. Taylor does belabor us for fence climbing. [I am not going to climb any fences just yet. The fact is, Mr. Buchanan boiled some of his honey a good deal longer than fifteen minutes, and did not kill the foul-brood spores. Here was an actual case; and if a temperature of 212 did not kill those germs after two hours' boiling on the part of the scientists, I very much doubt whether fifteen minutes' boiling at a temperature of 240 or 250, say, in honey, would do any more. I still insist that I am safe in staying on the long-boiling side of the fence; but I am not safe (until I have better information than I now have) on the other side. If the situation had been reversed — that is, had the average bee-

Digitized by Google

keeper considered two hours insufficient to kill the foul-brood spores, then if I had had the evidence from two or three that fifteen minutes' boiling was enough, and had flopped over to that position, then I might with fairness be accused of changing my mind hastily. I chose to take the safe side of the fence, and still think I am justified in holding to that position — especially so as Mr. Taylor says I have a following who will take my advice. I have written to Mr. Thos Wm. Cowan, and am waiting to hear from him on this point, for I know he will approach the subject from the standpoinnt of a bee-keeper and a scientist.—ED]

You never hear a bee complain,
And this sad world bewail;
But if she did, she could unfold
A very painful tale.

The lines above were sent me by J. L. Peabody, of Denver. They were read by him in reply to a toast at a church meeting in that city—"Drones in Plymouth Hive."

PROGRESSIVE BEE-KEEPER.

Somnambulist and others have my hearty thanks for kind words concerning myself. For any display of genius, however, a department of this kind offers about the same inducement that the edge of a board does to sleep on.

F. L. Thompson writes a long article on facing honey, and I must say it is good. If I were to give the spirit of his sermon it is this: The seller should let the buyer know as much about the article sold as the seller himself knows, inside and out.

For the production of extracted honey, H. H. Hyde says one must have a strong colony, No. 1 queen, plenty of honey, lots of room for egg-laying. Mr. Hyde says queen-excluders are worse than useless—the greatest curse ever put on bee-keepers. Whew! That seems to contradict what a host say about excluders. Can't "locality" be used as a scapegoat here?

The poet of the *Progressive* goes too far when he speaks about the churches stoning women. The intimation is not true. In the case cited, I have no doubt the reformed woman would fare as well in the church as at the hands of Mrs. Mitchell if she should find her husband in company with said woman. But Mr. M.'s lines are, as a whole, good. His only defect is a strong bias against Christianity.

BEE-KEEPERS' REVIEW.

C. Davenport is breeding out Italian blood in favor of the German brown bee. He thinks the latter caps the honey whiter, besides having some other redeeming traits that the Italians do not. His views will excite much discussion. Mr. D. makes a specialty of honey.

"Blame where you must,
Be candid where you can."

It strikes me if all bee-writers were a little more *candied*, instead of being so very *candid*, there would be less fur in the air. Why can't hives and machinery be discussed as calmly as the weather? A change of mind ought to occasion no censure and need no apology. Minds worthy of the name always change on evidence.

T. F. Bingham contributes a good article on how to keep bees good-natured. Smoke is one of the means he uses. He says no one should go among bees without a cape made of cheese-cloth to fall over the neck and shoulders, to keep bees out of the hair. A bee once rendered vicious will always stay so. He finds a pair of old gloves, with the thumb and first finger cut off, a great help in handling bees. They also protect from the sun's heat. He kills bees that follow him around.

A new department seems to be a leading feature in bee-journals now. "Good Things from Other Journals" is the name of the one just started in the *Review*. It is under the management of our genial friend Dr. A. B. Mason, of Toledo. He has 2¾ pages as a starter. Dr. Mason is too well known among bee-men to need any support from me; but what he says between the extracts is good. Here is something that is true: "There is so much that is good in the different bee-journals that it will be no easy task to select what is *best*."

R. L. Taylor criticised Dr. Miller for using the expression, "bring to a boil." The doctor defends his usage by referring to the Standard Dictionary, the latest and by far the largest work of the kind ever printed. Mr. Taylor objects, saying no other dictionary makes any mention of "boil" as a noun in this sense (heating water). Dr. Miller is entirely right. Dictionaries record current usage of words just as newspapers record events. A paper of to-day recording a fire this morning has more weight in proving the disaster than all other papers printed yesterday. But *all* dictionaries would speak of "*Christian* behavior" instead of *christian*, as the adjective is derived from a proper noun. But that may have been a misprint on Mr. Hutchinson's part. *Sic* 'em, Tige!

AMERICAN BEE JOURNAL.

Mr. Secor has the following line:

May the strength which I gather while Day's in the West.

I get no meaning from it, as I do not know what Mr. Day went west for.

J. M. Hambaugh suggests the election of Mr. Dadant (probably the younger) to the Illinois Legislature, in order to work for a foul-

Digitized by Google

brood law. Some States, I am told, make persons ineligible to that office unless they were born in the United States. If that does not interfere he would honor such a position.

Dr. Miller thinks catalpas are not of much value for honey, although bees are plentiful on them in the spring. Bees swarm on them here, but the blossoms, I should judge, are destitute of honey.

Mr. Getaz begins with a serious investigation of the subject of "locality." He admits it sounds like a joke, for, of late years, this word has been used to account for every irregular and strange antic the bees cut up, a good deal as some folks lay all their trouble to the weather. He shows plainly how much his management in Tennessee must vary from that of a man living in the middle of New York.

CALIFORNIA ECHOES
BY J. H. MARTIN.

I would say to Bro. Wilkin, in reply to his remarks upon page 95, that I prefer the slatted zinc honey-board for the reason that it at all times has the proper bee-space, and the fact that he has to peel it off from the hive is a sufficient condemnation of it. It sags down, holes get stopped, and unless there is more care exercised than by the most of the California bee-keepers there will be many of the bees killed when putting them on the hives. In fact, there is no end to the evils of the plain sheet-zinc honey board.

The Chamber of Commerce of this city is an up-to-date organization, and at this writing they are considering the feasibility of producing rain by artificial means. Prof. T. S. C. Lowe, the great balloonist of the Federal armies during the rebellion, and now a resident of Pasadena, has given the Chamber many valuable suggestions in the line of rain-making. Los Angeles spends many thousand dollars nearly every year upon a fiesta, which is ninety per cent foolishness. Prof. L. says that an equal amount spent in an effort toward rain-making would result in much good. He says it is not necessary to bombard the skies by firing cannon. The release of certain gases and the creation of smoke will answer as well. I hope the experiments will be tried, and hope to report the results a little later.

I wish you would not allow Dr. Miller to say so much about having hives with the worse than useless hand-cleats clear across the ends of hives. Of course, there is no objection to the doctor using such out-of-date things, but what is the use of allowing him to harp and harp upon it? Say, doctor, if you want to get such a tight grip upon your hives, why not put on handles such as they use on coffins? Don't allow yourself to use that pug-nose affair recently illustrated in GLEANINGS. Get something substantial, as I have recommended, and then stop harping about it, and there would be a great relief to a long-suffering community who believe that simple hand-holes are a good-enough handle to a bee-hive.

Not long ago I received a honey-leaflet from parties in Denver, and it had a beautifully illuminated cover, and I immediately recognized the design and the coloring as one of my long-lost children. I was pleased to find a good use made of it, and perhaps the Root leaflet would be more effective with that or some similar design. I fail to see where it would be improper to use artistically illustrated honey-leaflets with as much vigor as that used in advertising pickles or chow-chow.

Bee hive manufacturers on this southern coast are preparing for but not anticipating much business during the coming season. There will be any quantity of empty hives in every apiary. We hear of quite a number who have nothing now but empty hives. Mr. Madary, supply-dealer of Central California, put in a minute's appearance at the State association meeting in January. He expects a fair trade in his locality. Alfalfa yields honey every year, for it is under irrigation. The amount of the honey crop is, however, dependent in a certain measure upon the atmospheric conditions, and these conditions are better after a normal rainfall.

The moving of bees is still a topic of interest to our bee-keepers. Where to move is the question. A Santa Monica man is about to move a wagonload of bees into Inyo Co. This involves a haul by team across the Mojave Desert a distance of 150 miles. I do not envy this man his job.

Mr. W. T. Richardson and wife, who spent several months in the East, have returned to his ranch and his bees in the Simi Valley. He reports better bodily health, but a sickly dry-weather feeling when he considers bee-matters. A goodly number of his 1200 colonies are still on deck, but a good amount of feed will be necessary to carry them through the season, provided it does not rain. Our conversation in this country is regulated by that proviso.

Messrs. Wilkin and McIntyre will move a large number of bees into the Bakersfield country. They think it will pay them, even if they do not get much honey, or merely enough to carry their bees through to another season.

Recently a young bee-keeper was holding up to ridicule some ideas of bees and bee-keeping entertained by his best girl, when she exclaimed, with some spirit, "Well, Charlie, I have lived through two dry winters in this country to some purpose. I am not so green as I look."

In sending queens to Jamaica by mail, a customs declaration *is not* necessary. Some parties sending us queens have made declarations, thus causing delay at both ends of the route. JAMAICA BEE-SUPPLY COMPANY.
Mandeville, Jamaica, W. I., Nov. 9.

Digitized by Google

LARGE HIVES FOR COMB HONEY AS WELL AS FOR EXTRACTED.

The Laying Capacity of Queens Adapted to Large Hives; Position of Doolittle and Hutchinson Criticised; Relative Value of Large and Small Hives for Wintering.

BY CHAS. DADANT.

As I have been the promoter of large hives, not only in America but especially in Europe, I desire to add some explanations to the articles of my son.

When I came from France to this country, 36 years ago, I had already owned bees and studied bee culture in the books and in the apiary; so I was convinced that, if I resided outside of a city, I could easily live and sustain my family on the product of the bee business.

The friend, a Frenchman, who had given me some information about this country, and to whose home I came, had four or five colonies of bees in box hives. One of these hives was immense, made of lumber 18 inches wide and 2 feet high. The combs were prevented from breaking down by two sticks intersecting one another. To take out the surplus the board of the top was unnailed, and the honey was cut out after sending the bees below with smoke.

My friend had begun by buying this large hive, and had from it a crop of honey every year.

The number of bees in this hive was so large that you could see as many workers going out of it as out of the three or four other hives together.

I had already noticed the superiority of large hives in the old country, and my persuasion was enhanced by observations in other apiaries around me here. A few years later I went to the auction sale of a farmer, to buy a cow. There were also six different-sized box hives. It was in March. The temperature was cold, so I tapped every hive with my finger to know whether they were alive. The bees in five of these hives answered to my tapping, with a short trill; the other, which was very large, answered bo o-o-o-m. I was fixed. I bought this large hive for $7.00, but I did not care for the small ones, each of which was sold for three or four dollars.

At that time I was already transferring box hives into movable frames. This large hive, after having been transferred, gave me, the same season, 160 lbs. of comb honey, which was sold at 27 cents a pound in St. Louis. So this colony paid, in the same year, for the cow bought, $35.00, and for itself. Of course, this colony had been transferred into a large (not Quinby but King) hive; for as I had to save every cent I could I had bought first the book of King, since its price was but 50 cents, instead of $1 25 or $2.00, the prices of the books of Quinby and Langstroth.

But I had already enlarged the King hive to twelve frames instead of ten, to give enough space to the queen; for, after noticing the superiority of large hives, I had made an observatory hive, and noticed that a queen lays about six eggs per minute, 360 per hour, and 3600 in 10 hours, 75,000 in 21 days. A little later, after having bought the Quinby book I made some Quinby hives, enlarging them also.

These large hives gave me excellent results in comb honey, for the extractor was not in use yet. Besides, in the beginning extracted honey was difficult to sell, as it had to compete with glucose.

A bee-keeper, living not far from here, having been told by a neighbor that I had bees that

CHAS. DADANT.

gathered 100 lbs. or more per colony, answered that I was a braggart. His bees did not give him more than seven pounds per colony, on the average. Of course, he had small hives. I told my neighbor to invite this bee-keeper to come and see my bees. He came, and I have never seen a man more amazed than he when I raised the cap of one of my hives to show him three boxes full of honey piled upon one another. These boxes were six inches high, and of the size of the top of the hives. For years we raised comb honey in frames six inches high, joined together to make boxes, Adair fashion, with glasses at both ends, before using the extractor.

We now raise extracted honey only, not because we can not produce comb honey with our large hives, but because extracted honey does not need so much work as comb honey, and we have some other business on hand.

While the large ten-frame Quinby hive is our hobby, the favorite hive of Doolittle is the small nine-framer of the Gallup hive.

Digitized by Google

Let us suppose that Doolittle has a queen able to lay 3600 eggs per day in one of his nine-frame Gallup hives, of which no comb contains more than 4600 cells, or for the nine, 41,400 cells. Every one of these cells will be occupied by this prolific queen in less than twelve days. Then the queen, unable to find empty cells for nine days, will be dissatisfied and will excite her bees to swarm.

Of course Doolittle, who is always watching his sixty hives, will cage the queen for ten or twelve days, to punish her for doing her work too well; so by his method he increases his work, instead of taking advantage of the value of his best queens.

Let me add a few remarks: The nine Gallup frames, on which the colonies of Doolittle are confined, can not have 41,400 empty cells to be used by the queen, for the workers always take care of storing pollen and honey as near the brood as possible. Then if one of these nine combs is filled with victuals the queen will have but 37,400 cells, or room to lay but 1800 eggs per day instead of 3600; hence the population will be smaller yet.

Mr. Doolittle writes that the queens in his ten-frame Langstroth hives did not lay more than enough to fill nine Gallup combs. I think that the cause of so poor a laying was the small number of bees in the hives in early spring. A large population and a large provision before winter give a large stock of workers in spring; but these requisites are difficult to obtain with small hives.

"But," says our friend Hutchinson, "if your queens lay so many eggs they are soon overworked, and die." I can not see why our queens would die younger than those which are provided with small hives. The queens doesn't lay at will. The eggs come out when they are ripe, and the queen can not stop their exit.

If you drum a swarm from a box hive you can ascertain whether the queen is with the bees by putting a black cloth under the swarm. After two or three minutes, if the queen is with the swarm you will see, on the cloth, the eggs dropped by her, as she was unable to keep them; and not only these few eggs are lost, but during the twenty or twenty-five minutes of your drumming she lost her eggs, being unable to keep them or to deposit them in the cells, on account of the trouble caused by your drumming. It is the same when a queen goes from a comb to another in search of empty cells.

"But," adds Mr. Hutchinson, "Mr. Doolittle has experimented on the matter. A queen which had laid 5000 eggs per day, in the whole season, was unable to live more than one year."

This report of Mr. Doolittle's reminds me of the Englishman who, going from London to Paris, arrived by boat at Calais, before sunrise, and went directly to the stage coach going to Paris. In Calais he saw but one woman, and she was cross-eyed. Then he wrote in his diary: "In Calais the women are cross-eyed." We have never made experiments on one or two hives, for such experiments prove nothing, but on 30 or 40 of each kind of hives during several years, to be sure of the result. If our queens were killed by overlaying, not in one but even in two years, we should lose on the 80 colonies at home more than three queens every month; and during the six months when there are no drones to mate the young queens, fifteen of our colonies would die every year; yet our winter losses, although we winter our bees on their summer stands, do not exceed two or three per cent on an average, in our home apiary. The death of a queen in winter is the death of the colony.

Although this winter was very hard on bees, my son wrote lately to the editor of the *American Bee Journal* (page 121, Feb. 15), "We have just had a good day for the bees. The colonies are strong. There is next to no loss," etc.

For twenty years or more we had a number of colonies in ten-frame Langstroth hives, in the same apiary, with about the same number in eleven frames, Quinby. We were then selling queens, and colonies of Italian bees, and our customers wanted mostly Langstroth hives; but the comparison, in the quantity of honey produced and in the losses in winter, was so unfavorable to the Langstroth hives that we transferred their bees to our large Quinby hives, and we have now these old hives rotting behind one of our shops. Their number will increase this summer; for when our friend Hambaugh went to California three years ago we bought of him his hives and fixtures, and left them on their place at Spring. We have there a good young man to take care of them. He wrote us lately:

> Have lost 12 colonies—10 in Langstroth hives. All died with plenty of honey but two. The honey was too scattered.
> Spring, Ill., Feb. 24.

We had there 80 colonies—50 in Quinby eleven-frame hives, and 30 in Langstroth ten-frames. So one-third of the colonies in Langstroth hives died, while only one in 25 in our large Quinbys died. Do you not think that such a comparison is in favor of the large Quinby-Dadant hive?

Of course, if our bees in Langstroth hives had been wintered in a cellar this loss would have been avoided; but how could we have a cellar in every one of our five outside apiaries? Besides, cellar wintering is not always successful. When we built our house we partitioned a part of the cellar to winter bees in it; yet we found it difficult to keep a uniform temperature in it during the whole winter, and we noticed also that the bees were not as healthy in spring as those wintered on their summer stands; so we resolved not to winter them any more in the cellar, and this wintering outside of our large hives gave us the best results.

Hamilton, Ill.

[Mr. Dadant is, if I am not mistaken, the oldest living veteran we now have in our ranks, among those who have been prominent before the bee-keeping world. According to Stenog, he will be 82 years old next May, and yet at this fourscore mark he is still vigorous in mind and body.

Digitized by Google

The Dadants can point with pride to the fact that their assertions are not based on experiments conducted on a small scale, but upon the results of testing several large apiaries with large hives for a period of many years. We can not doubt their word that they have produced more honey in such hives. And then the elder Dadant says this experience of theirs is borne out by the bee-keepers of France, who are largely following the Dadant system. The results, then, summed up, seem to be little or no swarming, very few winter losses, and more honey. If these things are facts, and the Dadants say they are, I do not really see how argument can disprove it. From the standpoint of a supply manufacturer, wish that they were not right; but I get a good deal of solid comfort out of the notion, that almost amounts to a conviction, that two eight-frame hives will accomplish the same results, and yet permit of the advantage of handling large hives in halves rather than in a big unliftable whole. I say I get comfort out of the thought, notwithstanding a kind of lingering fear that those big brood-frames, with their cards of brood, may make a difference in actual results.—ED.]

SECTIONS WITHOUT SEPARATORS.

How to Produce Comb Honey Without Separators or Fences.

BY DR. C. C. MILLER.

I received a letter from W. B. Ranson, protesting in somewhat vigorous terms against the use of so much paraphernalia in working for comb honey, insisting that, if it was such a gain to allow free passage in supers by the use of fence separators, it would be a still greater gain to dispense altogether with separators, and that, if the same amount of brains that had been used in trying to decide just how such things should be made had been used in trying to find out how to get straight sections without any separators at all, we would now be further on than we are.

In support of his view, and drawing from his own experience, he wrote:

"In 1897 I ran for all comb honey, and used a few bait-sections, and no separators; when I cased up the honey I had 21 bulged sections to the 1000. In 1898, for the honey I have just finished casing I used bait-supers *full of old* sections, with combs and honey. This time I still used *no separators*, and had only 3 bulgers to the 1000. Now, doctor, if you will, next season take some T supers, fill them with sections *open all around* (four beeways), and leave out separators, and let the bees have free access from end to end and side to side, level up your hives nicely, and when the bees are working freely in bait-supers put those supers on; and if the honey-flow is on, the combs will be built straight and nice. The main point is to have the combs in all the sections built down at the same time, and this requires plenty of bees and something to work with."

As few as 3 or even as few as 21 bulgers to the thousand is more than I should expect to reach if I discarded separators, even with four beeways and every thing made level with a spirit-level, leaving it a question whether Mr. Ranson's locality and honey-flow might be entirely different from mine, or whether there was any thing in his management that cut any figure in the case. A letter just received from him makes me believe that his management may have much, if not all, to do with it. I give his letter in full:

COMB HONEY AT SWARMING TIME.

Dr. C. C. Miller:—I promised you a letter on this subject, and state my practice as follows: I feed, unite, and encourage in every way, brood-rearing in early spring to get the bees to swarm early; and when they swarm I take out the queen and let her bees return; and in eight or ten days they swarm again, a mammoth swarm with virgin queen. Now this is my chance for big work in sections, so I take a hive with starters in brood-frames, or combs, if nice and white, and put on a queen-excluder; next put on a super with narrow starters; remove parent colony and place this hive in its place; take unfinished super from the parent, and place on top; put the guard over the entrance, and run the swarm in through the zinc; and if I find more than one queen on zinc, let only the *choice one* go in, and replace the guard *at once* to make sure only one queen gets in. Now take the combs from the parent, and brush all the bees off and out of the hive; let them also run in through the zinc, and take another lot of queens from the zinc, and let the guard remain, so as to keep out any queen that remains in the grass. Replace the combs of capped brood in the parent hive and close with wire cloth, and place it in some comfortable place to hatch out. If any of those combs have large healthy-looking queen-cells still unhatched, dequeen other colonies and hang said combs in. In 24 or 48 hours I repeat the brushing, and let the rest of the young bees go in; and if I want more queens I pick up the prettiest and put on those old combs with remaining bees to hatch. On the third day I remove the guard to let the queen mate.

Now I have a colony to fill the hive and two supers with bees, and by brushing young bees as before I can have them fill to the third and fourth super—no fear of swarming again; and if any honey is to be had, this is the colony to find it. It is fun to see all the combs in sections built down at the same time, straight and nice; no need of separators. I learn from the bees that no colony in which a cell hatches out a queen, and she takes her flight, and returns, will swarm again *that year, no matter how populous*. Now stick a pin here; and, again, no swarm hived with a virgin queen will build a drone-cell that year.

Now you may set another peg. Therefore I work to get all swarms hived with virgins, and, as far as I can, have cells given in early spring to prevent swarming. Early fertile queens from the South in spring help to keep down swarming in part only; but the cell given in spring is effectual. Any unhatched

Digitized by Google

brood on hand by this practice is the best property to be had to build up weaklings, form nuclei, etc.

I am no literary man, and make no pretense to rhetoric, but a close hard worker in the bee-yard and workshop; and what little I know for *sure* is what the bees taught me, and much of that is to some extent at variance with what I read in some of the books; for instance, Prof. Cook's book taught putting supers ⅜ in. above brood-frames, when the bees say, "If more than $\frac{7}{32}$ in. we will build in combs." Friend Doolittle, that veteran and esteemed teacher, never told us the ⅜-in. entrance is too small until the bees raised a fuss about it, then he said ½-in. was right; but my bees say one inch. W. B. RANSON.

New River Depot, Va., Feb. 6.

There are points of excellence in this system of management that might well be considered by those so situated as to allow natural swarming. The gist of the affair is in keeping the whole force of the colony intact, thus having a powerful colony, and then avoiding the danger of such powerful colony swarming by having a young queen reared in the hive at or near the beginning of the harvest. Whether or not Mr. Ranson is correct, that no drone-cells will be built with such young queen, it is certain that the tendency toward building drone-cells will be thereby greatly lessened, and the strong force of bees crowding the supers makes a sure thing of pretty straight work in sections, whether separators are present or not. It is certainly an advantage to do without separators if they are not needed Mr. Ranson does not specially dwell on the point that he secures very strong colonies, but it will be seen that that is an essential and very important part of his plan. He says he feeds, unites, and in every way encourages brood-rearing so as to get the colonies to swarm early, which is only another way of saying that he does all he can to get colonies strong, uniting those not otherwise strong enough.

His plan of getting all the bees into the swarm is radical. Brushing all the bees off the combs of the old hive, he closes the combs in the hive so no robbers can get in, and leaves the remainder of the brood to hatch out without any bees clustering on the comb. This, he says, is "in a comfortable place," which may be outdoors generally, but would need to be in some warmer place if nights were chilly.

Without any experience in the matter I should say that it is unnecessary to be at the trouble to have perforated zinc at the entrance to strain out the young queens; that there would be no danger of swarming, no matter how many young queens there were, and that the bees could be trusted to make the best selection, but it is possible that Mr. Ranson may have sufficient reason for the practice.

Marengo, Ill., Feb. 14.

[While I believe there is a good deal in Mr. Ranson's plan of working, yet there are very few, if I may judge by the past, who get any thing like satisfactory results in securing comb honey without separators. We know that with honey-buyers and commission men (and it is certainly true in our own case) as a rule non-separator comb honey goes at a discount. In our own experience it has to be crated a good deal as it comes off the hive; for if two fat sections come together, then there is trouble. The fat one must be set aside until a lean one is found, then the two faces are put together.

Now, understand that I do not say that comb honey can not be produced, and very nice honey too, without separators; but I do know that *the average* bee-keeper does not succeed with it; and if I read correctly between the lines, Dr. Miller would not use it, even if he could do just as well as friend Ranson.—ED.]

FORMING NUCLEI.

A New and Very Practical Method of Doing it; an Ingenious Scheme for Making the Bees Stay at Home.

BY W. W. SOMERFORD.

"Expansion," or how to increase with the greatest certainty of success with the least labor, is a problem that I have been reading about and experimenting on for more than a dozen years. I have read hundreds of articles on the subject, and have questioned many prominent bee-keepers minutely as to the best, surest, and easiest way to get increase. I was even told by Mr. A. W. Osburn, of steam-extractor fame, exactly the way he increased from 25 to 500 in Cuba, in one season; but as he had money behind the scheme, by the thousands, I consider it no very remarkable feat. I even believe it could be done here in the States with Miller feeders enough and the continual buying of feed in enormous quantities, so as to keep one on each hive well supplied with honey; for with plenty of feed, and by pouring it into the feeders at night, nice and warm, increase can be easily run geometrically. But the cash backing is what nine-tenths haven't got; and if they did have, the honey that it would take to have those Miller feeders always plentifully supplied would cost so much that it would put a man to dreaming, and figuring to see if the bees couldn't be bought cheaper than the feed. So I'll come back to my way of increasing—"the poor man's way" in one sense of the word, and necessity's in the other; for bees are generally kept now in a number of apiaries, and consequently can not be tinkered with every day.

I now have six apiaries, and of necessity I had to invent a way of increasing rapidly and satisfactorily, with but little attention given to each division. To begin with, remove the queens or cage them in all of your fancy stock. After getting the brood-nest well filled with brood (the more brood the better—8 or 10 frames in a hive if possible) wait ten days after removing the queen, when the bees will generally have cells on each and every comb, and be in a broody or listless condition, waiting for cells to hatch. Dive, and remove the

Digitized by Google

frames quietly, giving each new hive two frames of brood and all adhering bees, and one good frame of honey, using it for a division-board (and, by the way, such division-boards are to my notion the best in the world); put the two frames of brood and bees next to the wall of the hive, and let the honey-frame be the third from the side of hive. Be sure to see that you have at least one good ripe-looking cell in each new hive, or division, and don't forget the frame of honey. As soon as each division is made, stop the entrance of the hive by stuffing it full of green moss. If you haven't any green moss, use green grass or leaves, and be sure to stuff them in tight—as tight as though you never intended the bees should gnaw out, and be sure there are no cracks or holes that a single bee could get out at; for if there are, your division will be ruined by all, or nearly all, the bees that can fly leaving it. Each parent colony should make four or five good divisions that will make booming colonies in 40 or 50 days, and I have had them the best in the apiary in less time. Leave or loose the old queen on the old stand (if not too old), and the bees from it will work straight ahead, as they don't have to be confined to make them stay at home.

Don't be uneasy about the divisions that are stopped up, unless you failed to stuff the entrances well, for they *will not* smother, but busy themselves with gnawing at the moss or grass for two or three days, possibly four or five, if you have done an extra good job at stuffing the entrance. At the end of that time you will find them all gnawed out so as to have egress and ingress. Then you can move enough of the grass or moss to give them a clean entrance, 1½ or 2 inches wide; and by looking into them you will be astonished at the quantity of bees you have in each hive (and they, too, well satisfied), having consumed so much time in gnawing out that the queen had time to hatch and kill off her rivals and be ready for the wedding-trip by the time the entrance is cleared. So, instead of in a week's time, having a worthless weak division with a *chilled* inferior queen, as is the case in the old-style way of dividing, where nine-tenths of the bees return to the old hive, you have a strong vigorous queen and a nice little *satisfied* swarm of bees, ready for business in the way of pulling foundation before they are three weeks old.

I have succeeded with nineteen out of twenty divisions made in the above way, when I did not even see them until the third week after dividing them as above. And for the average bee-keeper who has out-apiaries I think there is no better way in the world to make increase. If there is I'd like to see or hear of it while the expansion question is being expanded.

In the above method of increasing, you have no queens to buy, no robbers to bother with, and but little time lost, as an expert can make 20 divisions an hour.

Navasota, Texas, Feb. 26.

[I do not know that I have seen this plan mentioned, for making bees stay in the hive—a plan whereby the whole thing works automatically. It is new, and I believe it is ingenious. It certainly commends itself as being practical.—ED.]

CUBAN HONEY.

It will Never be a Competitor of American Honey, and Why.

BY FRED L. CRAYCRAFT.

As the pages of GLEANINGS are often favored with something about Cuba it seems that interest in the apicultural future of this island is reviving; and now that we are gathered under the coat-tails of Uncle Sam it does not seem as if we are so far out of the world after all, and it is now time that Cuba should step forth and take her place among the honey-producing countries of the world, not only as to quantity but quality, in which she should lead the world. However, I think the fears of some of the fraternity are unfounded if they think that Cuba will flood the markets; for even if the duty of 20 cents per gallon were taken off there would be but little of it shipped to the United States, for the simple reason that we can get more for it in the markets of Europe. Of course, the white honey from the bellflower, neatly put up, either extracted or comb, would be a dangerous competitor if enough were produced; but Cuba will never have many Doolittles, Roots, and Hetherington; and if they were here they would find so many things to turn their attention to that they would not devote their time strictly to apiculture. I may be mistaken; but I think if A. I. were here and should go out to see the sun rise on New Year's morning he would walk right by where his bees were tumbling over each other in their haste to get out and get their backs all white digging their heads into the bellflower blossoms, and go and look at his coffee or pineapple patch, and pull some roasting ears for dinner, or perhaps carry in a watermelon before the sun warmed things up. The soil is very productive, and all fruits and vegetables known to the temperate climes as well as the tropics do well; and on account of the mild climate of this country, when one sets out a plant or tree he may feel sure of seeing it bear fruit.

During the recent disastrous cold wave which swept over the southern part of the United States we experienced the coldest weather I have seen during a seven years' residence on the island; but at no time did I see the thermometer drop below 52°.

There are many things to which one may turn his attention; but fruit-growing is destined to take the front rank.

There are also many disadvantages to one coming here; and, first of all, I do not think this is a poor man's country for a while, at least, and no one should think of coming unless he has enough to buy a place and carry him through his "tenderfoot" experience.

Politically this country has shown about every phase except liberty and good government; and if the pessimists of the United

Digitized by Google

States could have lived here a few years they could better appreciate the blessing of living under the best government on earth. The dawn of a new day is bursting forth at last; and under the tutelage of Uncle Sam, little Miss Cuba will in time grow up to be an accomplished young lady—not that Americans should expect too much from Cuba, for it must be remembered that the people have been under a government that has done all it could to debase them.

The present honey season is now drawing to a close, and, according to reports from what few apiaries are left, it has been a very good one, there having been very few days so cool that it interfered with honey-gathering.

Havana, Cuba.

[Nearly two years ago a report went abroad through the daily papers, to the effect that Fred L. Craycraft, an American citizen, had been struck down by some Spanish guerrillas; that his wife had been killed, with all his servants, and that his ranch had been destroyed. At the time there was no means for verifying the statement, but we gave it to our readers for what it was worth. Some months later, Mr. Craycraft unexpectedly called upon us, shortly before the outbreak of the Spanish-American war. He had come home to recuperate, and at the same time make some arrangements with a New York daily for which he was acting as special correspondent. After this he expected to go back to Cuba.

The simple facts in the incident related above were these: He had charge of a large ranch. A company of Spanish cavalrymen raided the place, killed and robbed people, and destroyed every thing they could find on the ranch. Mr. Craycraft, last of all, was requested to step outside of the inclosure. He knew well what that meant, for the Spaniards simply desired to get him at a point of range where they would not kill any of their own company in shooting him down. In self-defense he held up his United States papers, showing that he was an American citizen; but this so enraged the captain that he drew his sword and struck Mr. Craycraft on the shoulder, knocking him down, inflicting a bad flesh wound. But Mr. Craycraft, knowing full well the Spaniard, quickly arose to his feet, and offered him a hundred dollars if he would save his life. To this his would-be slayer agreed; but when Mr. C. produced the money the treacherous captain demanded to know where the rest was secreted, on pain of death. Our friend Fred, realizing that the money could be of no use to him dead, yielded, though he suspected further treachery; but fortunately this last saved him.

The story about Mr. Craycraft having a wife and owning a ranch was all a hoax.

I had many an interesting chat with Mr. Craycraft, for we went together to Buffalo. At a hotel in Cleveland he showed me letters of introduction from such distinguished persons as Gen. Gomez, Gen. Garcia, and Gen. Maceo. These letters spoke very highly of Mr. Craycraft, and testified particularly to the point that he was thoroughly reliable, and working in the cause of liberty. He had also letters of introduction from our consul General Lee.

Said I, "What do you do with these papers when you are inside of the Spanish lines?"

"Oh! I may have them ironed into my shirt-front. At all events, I have them stowed away where no one will ever find them."

"Have you been searched?" I asked.

"Yes, several times," he answered.

"Some time you'll be discovered; then what?"

"Then I'll have to take the consequences."

"What will that be?"

"Oh, I suppose the machete."

At the time, Mr. Craycraft desired that all of this should be kept strictly secret; for if the fact should have leaked out *then* it would have utterly destroyed his chances for doing some secret work which he expected to do when he went back.

Mr. Craycraft also had passes from the Spanish generals; in fact, he seemed to be a privileged character on both sides. Among other things he was assigned the important duty of conducting Senator Money through the Spanish lines into those sections of the country held by the insurgents, a task which he performed with tact and ability. Of his skill on this occasion the senator spoke in the highest terms.

You may wonder why I have so much to say about it. Simply this: Fred L. Craycraft was one of the Juveniles who, years ago, wrote for JUVENILE GLEANINGS. In fact, he grew up with the paper until it blossomed into the semi-monthly GLEANINGS. He has kept more or less in touch with us all these years, and, as our older readers will remember, he has been, during all this time, an occasional correspondent, part of the time from Florida and a part from Cuba. I know the readers of GLEANINGS will be interested in knowing that a member of our fraternity has rendered such distinguished services in the cause of freedom—yes, has been in the employ of Uncle Sam; has piloted distinguished persons through lines that no one else could pass.

When I last saw Mr. Craycraft at Buffalo I said to him, "You are about to go back into a very perilous work."

"I know it," he said; "but I believe it is my duty."

"I may never see you again," I said, "but I should much like to hear from you."

With this I bade him good-by and God-speed. As the war went on I often wondered whether he was still living, and at its close I tried to learn his whereabouts. I directed my letters to several points, and each time the letter would be returned. Beginning to think he had been killed, I tried once more, and this time I reached him. In this last letter I requested him to tell us something of his scout experiences; but he very modestly declined to say any thing about it, adding that he did not think it would be interesting; but he did send an article which I take pleasure in giving to our readers. It contains one interesting sentence, to the effect that Cuban honey, even if the duty were removed, would probably never be a competitor of American honey.

Digitized by Google

Mr. Craycraft is a man who knows as much as or more than any other bee-keeper on the island, in regard to the matter of honey. I am sure his letter will be read with interest.—ED.]

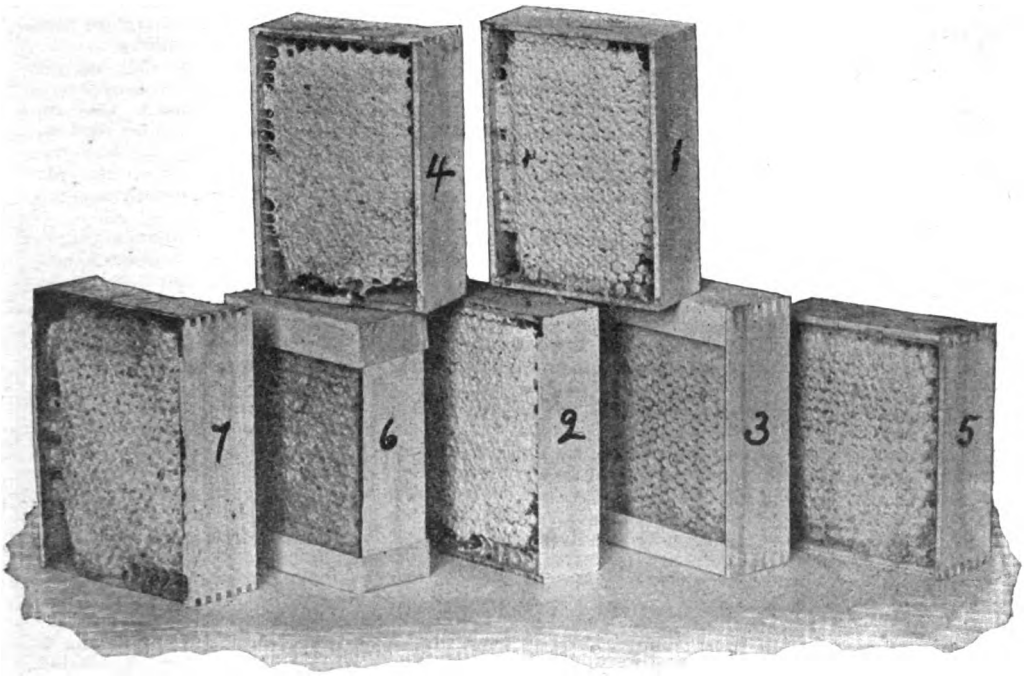
TALL VS. SQUARE SECTIONS.

From the Standpoint of a New York Commission House; "Tall Plain Sections Come to Stay;" a Valuable Article.

BY H. SEGELKEN.

Mr. Root:—We have noticed in GLEANINGS of late several interesting articles pertaining to the tall vs. square section, and we should like to say a few words from *our* standpoint, that of distributors.

We handle, perhaps, a larger variety of styles of comb honey than any other market, as we have a good demand for glassed sections, a good demand for unglassed, and a fair demand for paper cartons; and a one-piece section, for instance, would not be desirable for glassing. For unglassed honey (strip of glass on side of crate, sections not glassed) we decidedly prefer samples No. 1 and No. 2, the new-style plain section, one-piece. Sample No. 1 is 5×3⅝×1½, and sample No. 2 is 5×4×1⅜. This is the first season we have had any of these sections, and we consider them the best that have been put on the market up to this time. There is something neat about them, which catches the eye. Perhaps it is that they have no bee-space, or beeway (projection on the side), which makes the comb look so much fuller.



THE SEVERAL STYLES OF HONEY BEST SUITED FOR THE NEW YORK MARKETS.

It is our opinion that the square sections, 4¼×4¼, have seen their day. The tall wide section will dominate, and eventually drive the square section out of use just the same as the square section drove the old 2-lb. frames out of existence years ago. This may not occur all at once, but it is bound to come in course of time. When eminent producers are about to adopt the tall wide section they certainly know what they are about, and they would not make the change for the fun of the thing nor as an experiment. We handled several varieties of tall sections the past season, samples of which we had photographed, of which we send you copies, and to which we will refer.

They look larger, and seem to contain more honey, and sell more readily than any other.

As to a choice between these two styles, we are in favor of the No. 2, 5×4×1⅜, because the ⅛ inch it is wider makes it look so much larger from the front, as the pictures will plainly show.

Sample No. 3, dovetailed section, 5×3½×1½, we consider the most desirable for a glassed section. The glass fits exactly in the beeway, making the comb even all around, and the paper around the top and bottom holds the glass better than glue or tin tips, besides covering empty cells, if there are any, making the package as a whole as neat as any thing that could be found. Mr. J. E.

Digitized by Google

Crane says, on page 126, GLEANINGS, Feb. 15, of the middle section, which he purchased in Washington, D. C., and which is poorly filled on the sides, that probably the section is too narrow to suit the bees. His section is 3⅝, and the section we have is but 3½, and plump full all around. We did not pick out the best comb, but the whole shipment of this lot was well filled all the way through, and this shipper had about 1000 crates.

Sample No. 4, one-piece, 5×3½×1⅝. This section is glassed, the glass glued to the section—any thing but a neat job, and we therefore can not recommend it for a glassed section.

Sample No. 5, dovetailed, 4½×4×1⅝, with bee-space. This section is glassed, fastened with tin tips—a good section for glassing, but small-looking alongside of the No. 3.

Sample No. 6, dovetailed, no bee-space, 5×3⅝×1½. This section is glassed, the paper holding the glass. We do not favor this style, as the glass lies outside of the section; besides, it is too heavy weight.

Sample No. 7, one-piece, bee-space, 5¼×4×1⅝—a large-looking section, but too heavy in weight.

While we are very much pleased with sections Nos. 1 and 2, we think there is still room for improvement; that is to say, the way *we* look at it, and we should like to offer this suggestion: Cut the sections down and make them still *thinner*. As they are now, they will weigh about an even pound, if well filled. The demand is for light weight sections weighing about 12 or 13 ounces. If ⅛ or even ¼ inch were taken off from their thickness they would have just the right weight to suit the majority of the trade, and would sell still better. We have been told by prominent producers that a thin section, for instance 1¼ in., can be produced to as good advantage as a thicker section, and that the bees will work on them and fill them just as nicely, if not better. If this is true, there is no reason why bee-keepers should not adopt a light-weight section. We are referring principally to samples 1 and 2, for unglassed honey. The cry would probably be raised that it would be dishonest to produce a section weighing but 12 or 13 ounces, and sell them for a pound. Yes, if it were sold for a pound it would be dishonest; but how much honey is there sold yet by the pound? Go into any retail store where they have comb honey, and ask, "How much is honey a pound?" and nine times out of ten you will get the answer, "So much a piece or comb." Nearly all honey is sold by the comb, consequently there is no dishonesty.

Right here we desire to touch upon another point of selling; viz., selling honey by the crate instead of by the pound. We have this season bought and sold a large share of our receipts by the crate. As Mr. S. A. Niver, of Auburn, N. Y., says in his letter to us, he has been selling honey by the count for years, and finds it very satisfactory. So have we. And we also find that the trade prefers to buy by the crate. Selling by the count saves labor all around, producers included, as they would not need to weigh the honey. We think this method has a good deal in its favor, and we should like to see it adopted generally. We may add that the honey should be graded properly, whether sold by the pound or crate. Nothing would be gained by filling the center of the crate with unfilled combs. It would sell for so much less per crate.

On the grading question we received a communication from Mr. Harry S. Howe and also one from Mr. Niver. Both favor the idea of having pictures of the combs of their respective grades in the market column, and these to be a standard for grading. Of course, the color or the quality can not be distinguished by the photos, and are not intended to be; but so far as unfilled cells are concerned we should certainly favor the idea. In this respect it would aid considerably in getting uniform grading. We wonder, however, whether this question will ever be settled satisfactorily all around. Of what use are the best methods or plans when there are bee-keepers who will not live up to them?

We said before, we had a good demand for glassed sections, a good demand for unglassed, and a fair demand for paper boxes. We do not wish to be misunderstood, and we repeat: For a glassed section, sample No. 3 is as desirable as any that could be had When glassed, 25 combs weigh 23 to 24 lbs., which is light enough for glassed honey.

But those bee-keepers who market their honey unglassed should adopt samples 1 and 2, and cut them down ⅛ to ¼ inch in thickness, and have a section which could not be surpassed. So long as light-weight sections have the call, why not give to the trade what it demands, when it can be done just as profitably as undesirable goods?

The *tall, wide, new plain section* has come to stay, and the sooner our bee-keepers make themselves acquainted with this fact the better for them. The demand for honey in paper boxes has fallen off somewhat for the past two seasons, and unglassed has been in *better* demand than heretofore. Nearly all of our receipts of honey in paper boxes have been in the folding box. We have experienced some trouble this season with honey in this style. It appeared to be in good condition when it arrived, but in a few weeks the honey began to ooze through the paper box, and we found every box more or less saturated with honey, and sticking to the crate. We never recommended the folding box, as we do not consider it strong enough. If a paper box be used, it should be the heavy pasteboard box with separate bottom.

New York.

Mr. Root:—Just after we mailed our letter yesterday one of our out-of-town customers, who buys comb honey in round lots, came in, looking for plain sections, and felt quite disappointed that we had no more in stock.

Some time ago we sold him a lot of the tall sections, like sample No. 1, and he told us yesterday that at that time he was not in need of honey, but the combs looked so nice he was tempted to buy. When he received that lot he had quite a lot of the square sections in his

Digitized by Google

store, which he had bought previously. He put the two lots alongside of each other, and found that all the customers grabbed for the tall sections, as they looked so much larger and neater. He finally put the tall sections out of sight in the rear of his store, so he could get rid of the square ones. This is simply *one* illustration of how the trade and the consumer regard the new plain tall section.

[Indirectly I learned that Hildreth Bros. & Segelken had something to offer on the subject of tall sections, and I accordingly wrote to the firm, asking them to give their views on the tall section, not knowing at the time that they favored the plain section. I also asked them to have a photo taken at our expense, showing the different styles of section honey which, in their opinion, was most marketable. They wrote us that, as the season was a little late, they had difficulty in procuring even fair average samples, and what they had to show would perhaps be under the average. The picture shown herewith illustrates the samples that they were able to procure, and, of course, are not presented because they are ideal specimens, but because they serve to illustrate the facts set forth in the article.

What Hildreth Bros. & Segelken have to say regarding the plain sections simply goes to confirm what Mr. Crane has said regarding these goods in the New York markets; and it seems to me that any one who lets his conservatism get the better of him so far that he will not furnish these goods for market, will be the loser. No one can afford to let prejudice stand in the way of better profits; and if the plain-section outfit costs a little more at the start, it will more than make up for extra cost in the end.—ED.]

HAULING 5 TONS OF COMB HONEY 300 MILES THROUGH THE MOJAVE DESERT.

A Novel Method for Getting a Higher Price on Honey.

BY C. WINTER.

Having produced the above amount of honey in 1898 from 150 hives, and the best and only offer being 7½ cts. cash at depot here, I concluded that, after spending 3 months raising it, I could afford to spend a month or two selling it. An opportunity offering to take the honey at a low rate of freight to Los Angeles, I jumped the chances and went.

The front wagon was loaded with four tons; one foot of straw in the bottom, and straw packed solid on the sides, making a tight fit all around, with a good canvas on top to keep the sand and dust out. On the sides of this prairie schooner were two 50-gallon water-barrels. The second wagon was loaded with one ton of honey, 20 sacks of grain (feed for team), one ton of flour (freight for wagon station), our blankets, etc., and two 50-gallon water-barrels. The third wagon was loaded with two tons of baled alfalfa hay and more grain; 12 horses driven with a single line pulled the outfit. The live freight, which in bad places in the road we unloaded, consisted of one teamster, one swamper, one passenger, and myself and a man who was "hoofing it" through the desert, and whom we picked up and gave a lift. As a side issue we had a two-horse team with cooking-outfit—mostly frying-pan and coffee-pot, presided over by four ladies, one man, and four children. We camped wherever night overtook us, carrying our own feed and water, and made the trip in four weeks.

Well, the honey rode all right on that "dead-ax wagon," over big boulders, through deep sand, down the San Franciscite Canyon, and up the Newhall grade, contrary to every prediction made by wise and old-time fogies; but it was fancy white honey—not a faulty section in the outfit. The driver understood his business; and when we reached Los Angeles, and saw fine white-sage comb honey (crop of 1897) in the show-windows at 10 cts. retail, we turned right around and sold, two days after arrival, one ton of our fancy water-white at the finest retail grocery in the city at 11 cts. spot cash. The homeward trip was made in a light rig in 6½ days.

Bishop, Cal., Jan. 30.

RAMBLE 164.

Bee-keeping on the Housetop.

BY RAMBLER.

Although it rained nearly all day Sunday I donned my mackintosh and attended church. I found that Roseburg has its full complement of little struggling churches. I have many times sadly considered the cranky ideas that hold the different sects apart, and see how hard it is for many of them to keep up respectable appearances. In a weak condition they are conducted with about half the zeal and vigor they should be. Why! it is just like dividing a rousing swarm of bees into a dozen nuclei just when the fields are white for the harvest, and expect them to secure a honey crop. If the dozen churches in Roseburg would unite in one rousing body I have no doubt they would be in a condition to soon cast a strong swarm and establish another church. Now, according to my notion, if the Universalists would be a little less cranky on the subject of tophet, the Adventists compromise a little on the seventh day, the Baptists revise their irrigation scheme, all the other isms ditto, and all come into the Congregational Church, what a happy condition of things that would be!* From the light

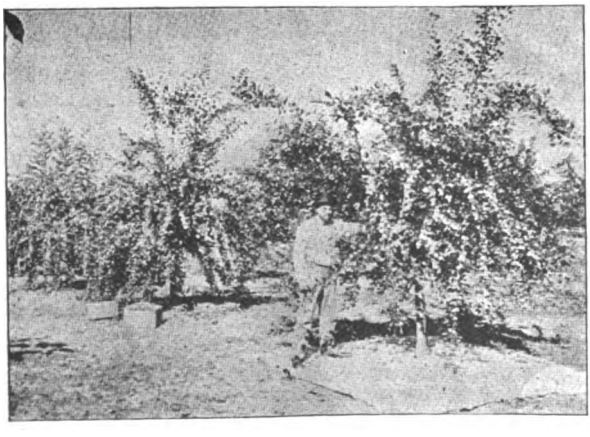
* Rambler's philosophizing on the need of uniting denominations struck a respondent cord in my make-up; but when he suggested that they should all be called "Congregationalists" I smiled out loud. When I was a boy we had a political meeting at the school-house, and there was strong talk of abandoning political parties entirely, and voting for good men. Somebody made a motion that, at least for the time being, and in our own locality, we let party drop entirely, and come together as friends and neighbors. This move had a hearty endorsement, and everybody began to look hopeful and happy. Finally a cranky fellow, who always got things wrong, and generally had more to say than anybody else, got up and mov-

Digitized by Google

attendance at church I should judge there was the usual number of sugar-and-salt Christians in Roseburg, afraid of melting under the raindrops. But how quickly their fears of melting are banished when a comic show comes along! They get to the show, rain or shine.

Having a well-spent day to my credit I felt quite happy Monday morning in spite of fogs and mud; and thinking that I could be of no use to the bee-keepers of the vicinity I left town at 8:30 on the schoolma'am train for the north. Roseburg has a normal school, and is a sort of headquarters for teachers, and a bevy of them came aboard the train, each armed with a common nickel-plated alarm-clock. I had some curiosity to learn something about the clock; but the prim and severe aspect of the owners presented an insuperable obstacle to my investigations in that line. However, the train soon stopped at a cross-road where there was not a house in sight, and one schoolma'am and a clock marched out. Soon there was another stop at a farm-gate, and so it continued for half an hour until all the ma'ams and their clocks were disposed of. The last stop was near a schoolhouse, and the children came romping through the mist to meet their teacher; and as I saw the cordial greeting I thought that surely the life of a schoolma'am has more roses than thorns in its course.

The same agricultural and horticultural conditions hold good in Oregon that we find in Southern California. Districts have their own peculiarities. One district produces a certain kind of fruit in greater perfection than an adjoining district. We are now passing through the Umqua Valley, where the prune grows to perfection, and we pass extensive orchards.



GLIMPSE FROM A PRUNE ORCHARD.

From this valley our route takes us over the Calipooia Mountains, and we enter the great Willamette Valley. The towns become more numerous and larger, the fields broad and level, and devoted to the raising of grain, while some towns are a center for the lumber business, which is great in Oregon.

While passing through the hills another feature reminded me of the far East. The lovely autumn tints of the forest were in their most vivid colors. This coloring is wanting in our southland; and as it had been nearly eight years since I had seen such a glory of the hills I allowed my eyes and imagination to feast to the full.

In the soft light of an autumn day,
When Summer gathers up her robes of glory,
And like a dream of beauty glides away.

In this valley we also reach the land of the golden pheasant; and the first one I saw fly out of a grain-field reminded me of a stick of yellow pine stovewood with wings attached. While the bird does not show off well in flying in the distance, it is a beautiful creature when seen at rest in a cage or corral. They are becoming plentiful all through this country, and in the season when they are allowed to be hunted they make a good table bird.

This time my ride by rail took me 146 miles, and I stepped off the train at Salem, the capital of the State, a pretty city of about ten thousand inhabitants. I was extremely lucky again to get into a cosy, well-kept temperance hotel.

During my journey I had not seen any evidences of bee culture; and I judged, from the appearance of the Willamette Valley, that certain portions of it were not adapted to the profitable production of honey.

The next morning I donned my mackintosh and sallied out in the misty rain upon an exploring expedition for some Oregon honey. I soon found a nice exhibit in a neat glass case in a grocer's store, and which had all of the evidences of a careful bee-keeper, and I forthwith interviewed the grocer.

"I observe you have some nice honey here," said I; "is this a home product?"

"Yes, sir," said he; "that was left here by Dr. Chase, of this city. He is the best-posted bee-man in this portion of the State, and a very skillful manager of the busy bee."

"But," said I, "do you not sometimes handle California honey?"

"No, sir, I do not," said he; "I want nothing to do with California honey. We always get it from dealers in San Francisco, and we grocers get imposed upon many times with adulterated goods; and a child that has been burned does not want to put his fingers in the fire again."

"Well," said I, "suppose an association of bee-keepers should send you some honey, and

ed that, when all party lines should be obliterated, the organization should be styled the "Republican party." This created a big laugh, but it had the effect of upsetting all that had been done, and each man went back to his old party line.—A. I. R.

Digitized by Google

guarantee its purity; would you not be willing to handle it?"

"That might be a different proposition," said he; "but there is so much adulteration practiced, and it is so easily done, that there would still be suspicion; but I am sure I should be willing to try to sell honey from such an association."

This is a fair sample of the way grocers all through this country talk and feel about California honey; and it seems to me that the only remedy is for bee-keepers to sell through an organization.

The grocer kindly stepped into the street, and pointed to the building where I would be apt to find the doctor, and I hastened in that direction, and was so fortunate as to find him in his office. I met a medium-sized spare man, about 70 years of age; hair, beard, and mustache plentifully sprinkled with white, and with a little black smoking-cap on his head. I introduced myself under my normal name, and proceeded to business.

The doctor has been interested in bees for several years, and sort o' stumbled into the business in an accidental way. The more he handled them the greater became his enthusiasm, and he gradually increased his number of colonies up to 100, and he also worked into a fine business in selling supplies.

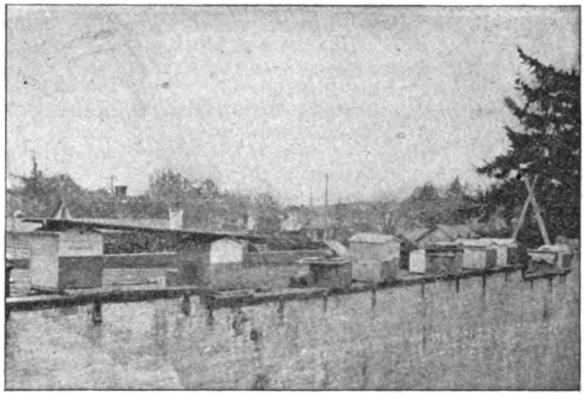
In order to enlarge his business, and to avail himself of cheap water power to run his machinery, he moved to the town of Lincoln, a few miles from Salem.

His business started in well, and he sold a large number of hives and other supplies, and every thing seemed fair for an enlarging and prosperous business, when, like many another man, in a moment when least expected, disaster overtook him, and his plant was burned. Disasters hardly ever come singly, and soon after the fire a flood swept away a large amount of choice lumber in which his money was invested. At the end of these sad affairs he was almost impoverished, and with only a few colonies of bees left. He returned to the city, and has again taken up the practice of medicine; but through and above all of these discouragements the bee fever does not leave him. With his son, who is also interested in the bees, they are building up again, and now have about 40 colonies.

"Ah! yes," said Dr. Chase, with great depth of feeling, "the blessed bees, *blessed bees*, they have come to my aid and enabled myself and family to live when all else seemed a failure—blessed bees." Indeed, doubly blessed in his case.

"If you care to see some of my bees," said the doctor, "I have 20 colonies near us."

I signified my entire willingness to see the apiary, and the doctor led the way to a rear room. His office was upstairs, and from this rear room we could look out upon the roof of a rear wing to the building. In both rear windows were hives of bees, and several hives on the roof beyond. He called this his Webfoot apiary, after the webfoot State of Oregon, you know. At about this time I had become quite enthused over the doctor's bee-keeping, for this was the first housetop city apiary that I had ever seen. I pulled from my pocket a tourist camera, and said, "If you have no objections, doctor, I should like to take a photo of your apiary."



AN APIARY ON THE HOUSETOP.

"Certainly," said he; and then, turning to me as though a new idea had struck him, he said, "Your name is—is—M—n; thunder and lightning! then you are the Rambler!"

"The same, at your service," said I, and proceeded to take the photo which I herewith present to your readers.

Some years ago the doctor served in the U. S. army as surgeon, and in his professional life he made a study of antiseptics. This habit he carried with him into the business of bee-keeping, and as a result he told me that he had discovered a remedy for foul brood.

"Why, doctor," said I, "if that is a fact you have made a great discovery, and a grateful fraternity of bee keepers will arise and bless you. But," said I, with something of a tone of doubt, "are you sure that you had a real case of foul brood?"

The doctor smiled as though it was presumption on my part to have the least doubt, and said, "I know too well the baleful effects of the disease; but I know I can cure it every time, no matter how virulent the case."

The doctor made no secret of the treatment, and it will be given in the next Ramble.

W. F. B., Ohio.—It is a little late in the season now (March 24) to move bees, especially in your locality. The moving should have been done late in the fall or very early in the spring. I think it would be advisable for you to leave your bees where they are for the present. If you desire to move them only a short distance, move them gradually—that is, only a few inches a day.

Digitized by Google

BROOD-COMBS FILLED WITH HONEY AND POLLEN.

Question.—Please answer the following in any bee-paper published in the English language, as we take them all. Here in Jamaica, just before the beginning of the main honey-flow, our bees fill up the brood-frames with honey and pollen. We take them out, putting in others, and these are filled. We know the queens to be good, young, and vigorous. We put supers on, but it does not help matters much. Whose fault is it — the bees', queen's, or ours?

Answer.—While this question comes from Jamaica, I thought it would not be out of place to answer it in these columns, as GLEANINGS not only has many subscribers there, but many of us here in the United States are troubled in a similar way with pollen, if not with honey. During the bloom of hard maple and the wild grape, I often have combs so filled with pollen that they seem almost useless, and others are bothered in the same way, some to an extent great enough so that I heard a man at a bee-convention once offer $50 for a machine that would remove pollen from the combs without harming them. I used to remove these frames of pollen, as our questioner says he does, but instead of putting in empty combs I put in a dummy or division-board in place of the frames removed; and when the sections were on, this would throw a greater force of bees into the sections, and thus, as soon as any honey came from the fields, it would go into the sections, thus relieving the pressure of honey from the brood-combs. But later on I would simply shove these combs of pollen back toward the side of the hive, by removing an outside comb if necessary, and place a frame of comb foundation between the pollen and brood, and where honey enough was coming from the fields to cause them to draw out this foundation the queen would fill it with eggs before the cells were deep enough for the bees to do much work at storing either honey or pollen in them, and thus I had brood where I should get only pollen were I to give an empty comb in place of the foundation. There is always something about drawing out foundation or building comb that sets the queen to laying more vigorously than where no comb is built; and where combs can be drawn or built, there is usually no trouble in having them well filled with brood; and where young brood is maturing rapidly much pollen is used, thus keeping the combs from being overloaded with pollen, and rearing a lot of bees for the harvest. But with us, such yields of pollen rarely last more than a week or ten days, after which the bees generally are anxious for brood; and what appeared combs nearly spoiled because they were so full of pollen assumes a different aspect very soon; and by the time the main honey-harvest arrives, there is little more pollen than is necessary in the hive.

Just why the queens do not breed when pollen comes in so abundantly is a mystery I have never been able to solve, though I have spent much thought and study on the subject. The nearest I can come to the matter is that, for some reason, the bees fail to feed the queen on the stimulating food usually given at all times when she is laying very prolifically, and all know she lays only as she is fed and cared for. When laying very prolifically we see bees offering the queen food every few minutes; but at these times when pollen is coming in so as to crowd the brood it is a rare thing that I see the bees feeding the queen. For this reason I should say that the fault lay in the bees more than in the questioner or the queen. If he can devise some plan or way whereby the bees can be caused to feed the queen abundantly at the time when his brood is being crowded with honey and pollen, he will have the key to the situation, and be enabled to turn these things to a good account as they are changed over into brood. It is possible that a little very thin or diluted sweet fed at such times would have the desired effect, if fed just at night, this causing the bees to feed the queen, as it generally does at all times when so fed. Were I to have another season when the combs are crowded with pollen I would try it and see what the result would be. There are times (when it is generally cool and stormy) when the bees will not feed the queen nor perfect any eggs into larvæ, no matter how hard you coax; and this time of pollen might prove like these; but I should sooner think otherwise.

SCHOLZ (OR GOOD) CANDY.

Question.—Jamaica, again, wants to know my treatment of a strong colony previous to giving the cell-cups, and also just how I make my candy for shipping queens, as only four out of the forty odd sent him last year arrived in any other than a good condition, and these four were fumigated to death in the mails, when the scare about the yellow fever was on. He says, "It would be dollars in our pockets if more of *your* queen-breeders knew how to make *Good* candy."

Answer.—A part of the time I buy this candy of The A. I. Root Co., and a part of the time I make it myself; and I do not know that there is any difference between that made by them and that made by myself, when first made. But with either, when shipping queens where they must go in hot weather, or go from our cool climate into a hot one, as in going to Jamaica or the Australian colonies, I take the candy and knead into it some very fine granulated sugar, to the amount of about one-sixth of its bulk, and this granulated sugar makes the candy "hold up" in place, no matter what the weather, while at the same time it does not take from its moisture.

To first make the candy I use good powdered sugar, setting it near the stove for four to six hours, till thoroughly warmed through, when some good thick extracted honey (of any kind which is wholesome to the bees) is

Digitized by Google

warmed till it feels quite warm to the hand. The two are now stirred together, adding sugar till it can be worked with the hands, when enough of the sugar is kneaded in till a loaf is formed which will stand up of its own accord without flattening down when placed on a flat surface. It is now set away in a warm room for a week or so, when it is ready for use, using granulated sugar, as above, when the weather is warm or the queens are to go to some climate where it is warmer than it is here. Before the granulated sugar is added, candy that will stand up nicely in a temperature of 75° will all go down and slowly run about if kept in a temperature of 100° for half a day. But after the granulated sugar is added it will hold its place, even when the temperature is above 100°. From what I have seen, I am convinced that more queens are lost when sent to a warm climate by the candy getting soft and daubing the bees than from all other causes put together, so it is well to guard this point as strongly as possible, for it is at best a hard jaunt for bees and queens to any of the foreign countries.

Regarding the preparing of a strong colony for queen-rearing, I gave all I wish to say in an article published in GLEANINGS the first of this year. I could not make it any plainer were I to try again.

THOSE HONEY-LEAFLETS ALL RIGHT; HOW THEY MAY BE MADE USEFUL.

They are all right! What's all right? Why, those honey-leaflets you were inquiring about. They are similar to a mustard plaster—the effect of them is according to how applied. They answer the 101 questions that every honey-peddler is asked at every door. Time is money. Have your name and address on them, so they will know where to send an order if desired. Every peddler of extracted honey is eyed with suspicion, especially by strangers.

Politeness should always precede the leaflets. As the lady opens the door tell her you have called to sell her a pail of as fine honey as she ever saw (never try to get a new customer with any thing but an A No. 1 article). Of course you will hear a lingo of questions about strained honey and sugar until one would imagine the regulator of a talking machine had given way.

Hand her a leaflet, naming some of its principal points, such as kinds of honey, care of honey, and the recipes, with a strong invitation to read it, as you have them printed for the benefit of your customers; also saying that you are trying to start a trade in that vicinity, and will sell her a pail on trial. If it is not satisfactory she may drop you a line and you will return the money and take what is left of the honey.

Of course, there are some where the honey may be left on trial without pay, and some where you should tell them you would return the money for the honey left. Common sense comes good every day.

Every package of honey should have the producer's name attached to it (excepting the poorer grades). The leaflets are not as costly as labels, and are 16 to 1 better. When a customer buys a pail of honey at the store and gets a leaflet it will be read, for it explains 101 things, as I have said before. They will inquire for that man's honey; the storekeeper will buy that man's honey; and if you are that man, place a horseshoe over your door, as good luck is yours.

Those leaflets, if not properly used, are like a little story I read. An old woman who lived in poverty had a son who dwelt in luxury. A friend asked if her son ever sent her any thing. "Oh, yes! he sends me a picture every little while;" and the old woman brought out from its place of safety a box containing the pictures which her son sent, which placed the old lady in joy, for they were $100 checks, but she never knew their value before.

If the columns of GLEANINGS are yet ajar to articles on facing honey I wish to say I always have been an advocate of facing our produce, but in such a manner that we could face our customers after the sale.

Please tell E. E. Hasty that I well remember his writings in the '80's, and one of the relics of my shop is a hive-balance described by him in GLEANINGS, Sept., 1880.

Mohawk, N. Y. C. R. MORTS.

NO QUESTION BUT THAT THEY DO GOOD.

I am at a loss to understand how there can be any difference of opinion in regard to the value of the honey-leaflets. Manufacturers and producers in almost every line of business expend large sums of money in setting before the public the merits of their products by means of handbills and circulars of every description. There must be a great waste here if all this has no effect. Fully half the customers to whom I have handed a leaflet along with the honey have asked, "What's this?" looked at the heading, and have been well along in the reading-matter before I left. There is no question that, if they are read, they must do some good, for the majority of people living in large towns and cities are not very well informed in regard to honey and its production—one fact which I think accounts for the idea so many people have that most honey on the market is artificial or adulterated, when, in fact, there is very little adulterated honey to be found nowdays; and I might suggest, as a means of educating the people a little more in this direction, that a few statistics on the production of honey in this country would be a good idea in getting up these circulars.

I am often asked the question, "Where do you get so much honey? I thought the production of honey was a lost art in this country." They do not know that the amount produced in 1890 was sixty-five million pounds, and has since largely increased.

Digitized by Google

The recipes for the use of honey as food and in medicine are, I think, the most valuable feature of these leaflets. In fact, I thought they were of such value that I selected the best of them and had them printed upon the label on the can. We sell mostly extracted honey, so that if the leaflets themselves were destroyed they could be referred to at any time. Quite a number of families do not care for honey as a spread, but use it for cooking purposes and in medicine, and any thing that serves to call their attention to the use of honey in this way is just so many more customers gained. E. Z. Buchanan.

Allegheny, Pa., Feb. 27.

HOW TO MAKE THOSE LEAFLETS A SUCCESS.

I guess I have said as many good things about them as any one; and before you dump them into the waste-basket lay some away for me to use; for if I ever get any more good crops of honey I shall *certainly* want them. Now, then, Mr. Editor, you want our views. Should the leaflet be more expensive? I might suggest one verse or a few lines added for the *express* purpose of cutting out and pasting in our hats. I should want it to read something like this: "Don't waste these leaflets, throwing them on porches, and scattering them around promiscuously. Don't use these leaflets if your honey is not of good quality and *thoroughly* ripened before it was extracted. Don't forget, when you do make a sale of *good* honey, to hand the customers a leaflet. Don't forget to tell them that it will teach them how to warm up candied honey; it will educate them quite a little. Don't forget that very *few* are educated about honey and bees. Don't forget that half the people hardly know what honey is. They should and will if we do our part well. Those leaflets will help do the talking. Don't forget to leave a sample of honey when you call from house to house. Don't forget to leave the leaflet and your name and address, because, after they eat the *good* honey, they will read the leaflet and then say, I *must* get some of that honey."

Don't you see we almost compel them to read those leaflets, and also buy our honey? Don't forget to stay at home, though, if your honey happens to be a little off—so much so that your own family don't like it. Don't forget that poor honey sells poorly, just the same as any other poor thing. Don't forget those leaflets are all right if you know how to use them rightly. Don't forget to take off your hat every few days and read these *don'ts*. Don't forget that, if the leaflets are all right in one place, they *must* be so in other places.

New London, O., Feb. 7. Dan White.

NO SALES FROM HONEY-LEAFLETS.

On page 19 Henry Wilson, of Clinton, Ill., gives an unfavorable report of the honey-leaflets as an advertising medium for selling honey. Since the editor says, "Let's hear from others," I will testify. On August 3, 1897, I ordered from you 500 leaflets, which were forwarded to my address, and I began distributing them among my neighbors and friends at once; and as my correspondence is somewhat extensive I usually made it a point to put one in every letter I mailed. The results have been watched with anxiety, but I have failed to notice a single pound of honey sold under the direct influence of the leaflets. My mode of advertising honey is, let them taste it. M. N Simon.

Bloomdale, O., Jan. 4.

THAT MORTON SWARM-CATCHER; CORRECTIONS FROM NIVER.

The last Gleanings, containing your write-up of the swarm-catcher, calls for a word or two from devotedly thine.

Firstly. You have no cause to grumble at my "five feet four." That elevation is a birthday present to me. See?

Nextly. Your drawing of the extension-pole is wrong at the top. The basket must be swung from forks, so it will keep right side up with care.

Once more. There is *another* pole necessary (or convenient) to go with the outfit. That is a 16-foot pole with a hook at the end, to shake the limb as you hold the basket under the swarm. After the main part of the swarm is in the basket, and lowered by means of the rope and pulleys, there is quite a per cent of them flying that will go back to the limb, many times calling the rest after them. But if you keep up a shaking of the limb with the pole they settle on the basket; and when quietly settled—never before—should be taken to the proper hive and "run in."

And again. That basket is fastened to the extension by means of a galvanized-iron socket which is part of the forks aforesaid, and can be slipped off when lowered within reach, leaving nothing but basket and forks (with socket for a handle) to tote off to the stand. I was going to improve this *shaking* pole by making it in two sections of 12 feet each, so as to fit all cases. S. A. Niver.

Auburn, N. Y.

TRAVEL-STAIN; A FEW MORE INTERESTING FACTS.

Friend Root:—I hardly need tell you I was much interested in the articles with criticisms on "travel-stain." While I see as yet no reason for changing my views on the subject, yet I feel that a free discussion is or will be helpful to a full and complete understanding of the subject. At the recent meeting of our State Bee-keepers' Association Mr. W. G. Larrabee made the statement that in the use of combs in an extra super for extracting, he had found that, where he used old combs in which young bees had been reared, the cappings of such combs were travel-stained; but in new combs, or combs that had not been used for brood rearing, the cappings were white. A statement was also made by Mr. V. V. Forbes, a very candid man, that, where he had cut down old comb, and the bees had built out new, the part nearest the old comb was darkest, and the color changed to nearly or quite white at the edge furthest from the old comb.

Digitized by Google

Another fact in regard to the filling of boxes was brought out by R. H. Holmes, one of the most careful and conscientious bee-keepers of Vermont. He stated that he had had small sections filled as perfectly as he had ever had those that were larger. Some of the finest honey he had ever produced was in sections 4¼x3⅛x1½, and would weigh just ½ lb. This would quite contradict what I thought was the reason for the imperfect filling of those I saw in New York and Washington; but I believe it much more important that we get at the truth than that any theory of mine should be proved correct. I hope that, before we are much older, we may know more about it. J. E. CRANE.

Middlebury, Vt., Mar. 7.

PROSPECTS DISCOURAGING IN THE EXTREME IN SOUTHERN CALIFORNIA.

From present indications this year seems destined to be one of the most trying that the various industries of the southern portion of this State have ever encountered. The bee interests in particular will suffer to such an extent that it will force many to seek other fields or means of making a livelihood. The present estimate places the loss of bees last year at 50 per cent, so you see that a further loss at the same rate would almost destroy the few remaining. The pitiable condition of the ranchers who are dependent entirely on the annual rainfall is beyond comprehension, and, as a result, many a man will suffer for the actual necessities of life.

G. W. BRODBECK.

Los Angeles, Cal., March 7.

PREPARING TWO-STORY HIVES FOR WINTER; TRANSFERRING, ETC.

1. How would you prepare double-deck eight-frame hives for cellar wintering?

2. In transferring from various styles of movable-frame hives to eight-frame D. hive, by Heddon process, when would you do it? Our main honey-flow is from clover and basswood (fall flow usually very light) but we have much raspberry forage, usually getting some swarms therefrom.

3. In transferring, would you drive bees up into a hiving-box, or take out old frames and shake them down in front of new hives? I wish to increase stock by a second "drive" later.

4. Can Mr. Geo. E. Hilton tell us, through GLEANINGS, how he gets his bees ready for the raspberry honey-harvest?

Cedar Falls, Ia., Jan. 28. J. D. BIXBY.

[1. I would not try to put two-story hives in the cellar. A colony can usually be crowded into one story late in the fall or about the time the bees are put into the cellar.

2. By the Heddon method you can transfer at any time, although if I had to transfer some time during the season I would do it either in the early spring or after the honey harvest. Spring is to be preferred, for then you will be enabled to use modern comb-honey supers.

3. I would do both ways; but generally I would shake the bees in front of new hives.

4. Hon. Geo. E. Hilton is respectfully requested to give the desired information.—ED.]

HOW DID THAT WORKER BROOD GET THERE?

Dr. Wm. S. Adams, of Guys, Md., sends me the particulars of a very unusual case, and asks for an explanation. It seems on first reading that there must be some mistake; but that can hardly be, every thing being given with such circumstantiality of detail from notes taken on the spot.

An examination of his colonies April 15 showed brood in two or three frames in each colony, a few colonies having brood in the fourth frame. One colony had a sprinkling of brood scattered throughout five of its frames, showing that it was unusually strong; and the brood being in worker cells, and capped over with raised cappings, showed clearly that it was the work either of laying workers or a drone-laying queen. It was not opened again until 25 days later, May 10. On that date were still found raised cappings as before; but in one frame, a little below the center, was found a solid patch of sealed worker brood, regular oval, about two inches in diameter, and in the center of the patch a well-formed sealed queen-cell! On either side of this frame was added a frame of emerging worker brood, and in due time the young queen left her cell, was fertilized, and built up a fairly strong colony.

Now, how did that patch of worker brood get there? One explanation might be that a comb with a patch of eggs or brood had been put there and forgotten. But that explanation is ruled out when the doctor tells us that in the same frame were scattered cells of the laying workers' work, and it is further ruled out by the information that the doctor's health was such that he did not touch the hives during the preceding 24 days. A played-out queen might lay a few eggs from which workers or queens might be reared, but in that case some sealed worker brood ought to have been seen April 15. Moreover, a queen so nearly played out that she laid only a few worker eggs would have those few well scattered, and not in a compact patch. It's asking too much to ask us to believe that the bees brought the eggs or larvæ from some other hive. The only reasonable guess I can think of is that by some means a laying queen from some other hive, possibly one that swarmed out in the excitement of a spring flight, entered the hive, and was tolerated long enough to lay the patch of eggs. If any one has a better explanation, I don't insist that mine is the right one.

Marengo, Ill. C. C. MILLER.

WATER-SOAKED COMB HONEY; ITS CAUSE.

By the way, I do not remember ever seeing any thing in GLEANINGS in regard to no air-space between cap and honey, made by hybrids. At least one-half or two-thirds of all my honey this year had no air-space between cap and honey. The capping was flat on hon-

Digitized by Google

ey—just as when you press on honey with your hand. The honey looks wet—is that way when on the hive. It looks very badly, and hurts the sale of it. Has this been written about? G. F. AYRES.

Atherton, Ind., Jan. 23.

[I do not know that hybrids are any more inclined to make cappings of their honey come in actual contact with the honey itself. We have always supposed that black bees make the whitest comb honey, for the reason that the cappings do not touch the honey itself; that hybrids, from the fact that they were half-bloods, were next best, and Italians third. But usually there is very little difference in the comb honey produced by any of the bees. The season and its attendant condition has more to do with it. When there is a moderate flow, I have noticed that comb honey is more apt to look water-soaked than when the flow is rapid. During the last season there was more so-called water-soaked honey on the market than during any other year I have ever known, and I attribute it to the fact that the season was poor and backward, and that honey had to be necessarily left on the hive for a considerable length of time. This water-soaked appearance may be partly due to so-called travel-stain; but more often because there are no air-gaps between the cappings and the honey.—ED.]

LOGWOOD HONEY FROM THE ISLAND OF JAMAICA.

The honey-flow has started, and is immense. We are extracting rapidly, and the honey is of the very highest grade — equal, we think, to your basswood honey of which we see so much mention made in GLEANINGS. The present flow is from the logwood, and we intend to send you three sections soon, as a sample, which will, we think, satisfy you that West-Indian honey is sometimes as good as the Northern article. HOOPER BROS.

Kingston, Jamaica, Jan. 24.

[The three sections mentioned above are at hand. In looks it certainly would compare favorably with any thing we can produce here in America. On breaking the comb we find the honey very thick, of a beautiful crystalline light amber; and when one tastes it he utters an exclamation of surprise and pleasure — at least I did. The logwood honey is unlike any thing else. The flavor is peculiar, suggesting something between violets and geraniums—at least the honey seems to taste somewhat as violets and geraniums smell; and yet the distinctive flavor is not strong enough so one would be likely to tire of it. My impression is, that if this honey were on sale in some of the cities, and if customers were allowed to get a taste of it, it would all go off at fancy prices. Not everybody may think as much of it as I do; but if all logwood honey is like the sample sent us I predict it will rank side by side with the choicest products of the world—mountain sage, honey of Hymettus, or any of the clovers. I hope the Hooper Bros. will be able to ship us some extracted logwood honey; and if they can manage to make it come this long distance without being damaged in transit we should like some of the comb honey also.—A. I. R.]

DO BEES LIVE AFTER STINGING?

In Stray Straws for Nov. 1, p. 790, there is a note that the loss of the sting of a bee does not necessarily prove fatal to it. I do not wish to set myself up for authority on the subject, but I will relate a little experience I have had in that line.

Sept. 7 I had a horse stung so badly by bees that it died. I was somewhat interested, and watched to see what hive or hives the bees came from; but I could not see any dead bees around any of the hives — that is to say, more than usual.

Wishing to experiment a little, and to find, if possible, the cause of death of the horse, on the 12th of September I procured an old horse and a swarm of black bees in an old box hive, and let the horse and the bees become well acquainted with each other. In fact, I placed the hive so that the horse tipped it over. I let the bees sting him for about twenty minutes. I expected to find a large number of dead bees, but I did not. I did not look to see if the bees that were left had lost their stings, but I was astonished not to find more dead bees.

The colony did so well that, in the last week of September, I transferred them. When I packed them for winter they were a fairly strong colony, and I wondered what became of the bees that stung the horse, for it did not seem possible to me at the time that they could have built up to the numbers they were after the depletion there ought to have been if those that stung the horse had died.

GEORGE L. VINAL.

Charlton City, Mass., Dec. 1.

TRAVEL-STAINS.

I do not wish to prolong this discussion, but I should like to suggest some facts that seem to conflict with Mr. Manum's position, or entirely disprove the soundness of it. I presume that every one who has placed an empty frame between two frames of old dark-colored brood-comb has seen quite dark-colored new comb built in that frame. I have seen it, when first started, nearly as dark as the old combs. I have seen a whole frame filled with dark new comb, differing in degrees of color. Can any one deny that old wax was used in making this comb? I will not affirm, as Mr. Manum puts it, that the "bees made use of it *for the purpose of economy*" (italics mine); but it is certain that the bees used some kind of colored foreign substance—it may be only old wax in this case — and incorporated it in this new comb. Why they did it I will not pretend to say. Again, if the bees carry in so much coloring-matter on their feet and bodies as to color the wax of the cappings, is it not reasonable to suppose that some of this coloring-matter would sometimes get mixed up with the wax in the very new combs built for honey? But we know that it does not. Bees begin putting honey in this new comb some-

Digitized by Google

times when the cells are not much over a quarter of an inch deep, and the lengthening of the cells and filling them with honey goes on at one and the same time; and there must be a great deal of travel over these new white combs; but we never see them travel-stained or pollen-stained, even when there may be some pollen in the bottom of the cell.

Referring to your experiments with gasoline, you say it dissolves and gradually absorbs the wax. I would suggest that the gasoline may dissolve the wax without dissolving the coloring-matter or absorbing it, and it is still left to show on the cappings. I have no theory to uphold in this matter, but only wish to get at the truth. THADDEUS SMITH.

Pelee Island, Ont., Mar. 13.

ONE THOUSAND MILES ON A BICYCLE IN CALIFORNIA; RAMBLER'S WRITINGS.

The drouth still holds a firm grip on California, with only about three inches of rain in the southern counties, and about seven inches in this part of the State. There have been no indications of rain this month, and the prospect for bee-keepers is very poor at present.

We find our bicycles a great help to us in seeing this country. In California the railroads, steamships, ferries, and some street-cars to suburban towns, carry them free of charge, and have never injured ours in any way. We brought them to California free as baggage, cased. My cyclometer now shows that my wheel has carried me one thousand miles in this State.

I have found that, of all my previous information in regard to California from various sources, the impressions obtained from the writings of J. H. Martin, in GLEANINGS, were the most correct. I consider his Rambles, as published in GLEANINGS during the past six or eight years, not only very pleasant and interesting reading, but also excellent in description on account of his peculiar style of giving a correct impression of life and customs with his descriptions of various locations.

This has been an excellent winter for traveling in California, and my wife and I have enjoyed outdoor life almost every day. We will now visit Salt Lake City and Denver a few weeks, then return home.

FRANK MCNAY.

San Francisco, Cal., Feb. 20.

WHAT HIVE FOR COMB HONEY?

A correspondent writes: "Would you please tell me which is the better hive for comb honey, the eight-frame or the ten-frame Langstroth? Last year I bought ten eight-frame Dovetail hives and put swarms in three of them. So you see I can't tell yet. Please advise in GLEANINGS, as I am a beginner. How is the Quinby hive? Tell how many sections you produced last year."

My present belief is that, for one who can not give his bees very much attention, the ten-frame hive is the safer. One who gives his bees sufficient attention, and uses two stories part of the year, may do better with the eight-frame hive. The advantage is on the side of the smaller hive for one who hauls his bees much.

The Quinby hive gives excellent results in the hands of the Dadants, and is held in high esteem in France. The size of the frames makes it still safer for wintering than the ten-frame Langstroth. For one who lets his hives stand unmoved it may be better than the smaller hives, but I have no personal knowledge in the case.

I had somewhere in the neighborhood of 1500 sections filled last year, and some of that was honey-dew that will be used for feeding this spring. C. C. MILLER.

Marengo, Ill.

A CORRECTION.

I notice some error in the mention of my entrance-closer in Straws, p. 166. Not 60, but not less than 160 hives an hour can be *closed* with my entrance-closer. This estimate is based on the experiments by inexperienced hands, one making it in 15 seconds, the other in 20. This would make an average of 205 per hour. At any rate, I am certain that bee-entrances can be closed with said closers at the rate of 200 per hour in L. hives of *various sizes in same yard.*

The detaching of the entrance-closer from the hives takes less time than above mentioned. L. KREUTZINGER.

Chicago, Ill.

[The error is not Dr. Miller's. He copied the figure from Pickings, p. 124, and Stenog found it in the *Review*. We now leave the matter with Mr. Hutchinson.—ED.]

WILL DEEP SNOW SMOTHER BEES?

In answer to the above question I would give as an answer a decided no. I see on page 22 a short editorial, "Snow around the Entrances of Hives." I myself used to feel very uneasy about my bees when drifted over with snow, until I learned by experience that it would do them no harm, but, on the other hand, it was a great deal of benefit to them.

I can not explain better what I wish to say than to give you my experience along this line. As I have already stated, I used to feel very uneasy when a great snowstorm came along, for fear my bees would smother. In fact, I used to dig them out to ascertain their condition. I had never seen any thing written on this subject in any of the books or journals that I had ever read, therefore I think I am excusable for my feelings.

Last winter my bees were in 4 feet 11 inches of snow (actual measurement); and as the hives are on low stands you can easily figure out how deeply they were covered over. I use the eight-frame Langstroth hive with winter case for protection.

My yard is so situated that, when a storm comes, the hives are quickly covered with snow. When they were covered so deep last winter I found upon examination that there were three distinct crusts, any one of which would hold the weight of a man, caused by slight thawing after severe storms. In front of every hive I found a large hole thawed,

Digitized by Google

about the size of a barrel, and no snow close to the entrance at all.

I always tip my hives forward so the snow melting at the entrance may not run into them. I always welcome lots of snow. I feel just like that neighbor bee-keeper of yours who said, "There is nothing I like to see better than my hives buried up in snow, because then I know they are going to winter well." But I would add thereto, "The deeper the better."

ITALIAN BEES NOT ALWAYS BETTER THAN BLACKS FOR GATHERING HONEY.

The season of 1897 the Italians were decidedly better, especially when the fall blossoms began to wane; but in the season of 1898 there was very little difference; in fact, the blacks and hybrids were a little in the lead as to amount stored. I. S. TILT.

Filion, Mich., Jan. 14.

BEES CARRYING AND STORING EARTH.

I saw something the other day I never did before since I have been in the bee business. That was, the bees packing the ground on their legs as they do pollen, and carrying it into their hives. They had a great hole carried away. The cause, I suppose, was a can of cylinder oil that stood there, and a gallon or so leaked out. What made them work on the oil and ground, for they have no use for them separate? WM. O. HEIVLY.

Raymore, Mo.

[At certain seasons of the year, especially in the spring, bees will carry away meal, or even fine particles of sawdust. Their attraction to the latter is doubtless due to the resinous properties of pine; and their carrying away the earth, as you describe, was no doubt due to the oil itself, as you suggest.—ED.]

THE MORE EVEN FILLING OF PLAIN SECTIONS.

I used to sell honey by the section here at 12½ cents each, and they generally held out—that is, 1 lb. to the section or over. They were the 1⅞ without separators. I am now using 1¾ sections without separators; and if well filled they hold a pound; but if the season is not good I find the sections are lighter. I tried a few of the no-beeway. I found them more even in weight than the others, and less bother to clean. I had fears, after I had ordered them, that, when *filled*, they would be more difficult to clean without marring the comb; but I was agreeably surprised. I would rather handle them than the old-style sections. JAS. S. WILLARD.

Bedford, Iowa.

DRAWN FOUNDATION NO ADVANTAGE.

I sent to you and got $1.00 worth of drawn foundation; put it on the 16th of August. We had a splendid flow for about six weeks. Bees worked it no better or quicker than they did your thin foundation. I thought you would like to know. L. P. BILLINGS.

Bloomington, Ill., Nov. 18, 1898.

J. R. M. A., Ind.—If you have dark honey we know of no way by which you can improve its color. The only thing to do is to sell it to bakers, or feed it back to bees in the spring to stimulate brood-rearing.

L. J. E., Ind.—You can transfer by placing a box hive on top of a frame hive, closing all entrance to box hive except through frame hive; but a better way, and more satisfactory, and certainly much more rapid, is the Heddon short method described in our catalog.

M. F., Ky.—I can not understand why the bees should rush out of the hive in mid-winter and die on the snow unless they were diseased. If they had dysentery, the snow in front of the hive would be badly spotted, with a good many dead bees around and near the entrance.

J. F. O., Ont.—You can place your hives containing sheets of foundation on their stands, all ready to receive the first swarm. It will not be necessary to close the entrance, for robbers will never attempt to carry away mere wax or foundation Yes, you can use wired frames with ½ or even ¼ sheets of foundation. Bees will build new comb on the end of the sheets right over a wire, just as if it were not there; but it is an advantage to use full sheets, as there are times when the bees will build that portion just below the foundation into store or drone comb.

J. W. C. G., Ill.—I would set the combs from the hives in which the bees died, in a tight box or in a hive that is bee-proof. If there is any dead or chilled brood, perhaps it had better be cut out and buried or burned. While there is no such thing as spontaneous generation, yet matter like dead brood is a favorable medium for the growth of foulbrood germs if they are present in the apiary or, possibly, in the hive. But we have set away combs containing dead brood hundreds of times, and, so far as we know, no trouble ever followed.

A. K. B., Kan.—It will do no harm to let the bees get a little of the meal from the bin; in fact, some years ago we used to make a regular practice, in early spring, of spreading meal in sunny spots protected from the wind, for the bees to gather as a substitute for pollen; but in later years we have discontinued the practice, as it seemed to stimulate brood-rearing too early in the season. Ordinarily speaking, the first pollen from natural sources is quite early enough for the bees; for when there is real pollen to be had, then there is likely to be settled warm weather, and then there is no difficulty. Feeding this meal resulted sometimes in having combs filled full of it, sometimes almost solid — so solid, in fact, that it was of little use, as natural pollen later on seemed to be preferred.

Digitized by Google

OWING to the general crowd of matter, I have reduced the editorial space somewhat in this issue. In the mean time I would call attention to the collection of excellent articles from different writers.

I HAVE just received an article from Harry S. Howe, who is conducting a series of apicultural experiments at Cornell University. He is Mr. Coggshall's crack bee keeper — yes, his "lightning operator." At present he is a student in the university, and during his spare moments he is carrying on experiments relative to foul brood. He has just sent in an article that will give a little "aid and comfort" to R. L. Taylor. Well, I will not say more, for Harry is abundantly able to speak for himself, which he will do in our next issue.

HONEY ADVANCING.

I HAVE just learned from our Mr. Boyden, who buys our honey, that *good* extracted honey is really a scarce article; that while the same could be bought a year ago for 5 and 5½ cents, it is now necessary to offer 7, and it is difficult to get a good article even then. There was quite a sharp demand for both comb and extracted, prior and up to the holidays, and then it fell off for comb; but lately the demand has increased, so that comb honey is running up in price. A good article could be bought a short time ago for 10 cts.; but now I notice that "fancy" brings all the way from 12 to 14, and No. 1 from 10 to 13. All of this is encouraging.

WINTER LOSSES UP TO DATE.

THE reports that are coming in gradually from all sources go to show that losses will be almost as severe as we feared they might be earlier in the season. In New York, Wisconsin, Northern Michigan, Pennsylvania, and in our other States where bees are wintered in the cellar, losses will be very moderate. The outdoor bees in double-walled hives will come out in fairly good shape, according to reports; but it is the colonies in *single-walled hives on summer stands* that are going to suffer. It is the old story of the slipshod bee-keepers who are too busy or too lazy to put their bees in proper condition for winter who will be the ones to lose most heavily. It is these who demoralize the market. But it will be the thrifty, far-seeing, hard-working bee-keepers who get the honey and good prices this year.

MAKING YOUR OWN HIVES; FOOT POWER VERSUS GASOLINE AND STEAM ENGINES.

IN spite of the large supply factories over the country, there are scores of bee-keepers who make their own hives, frames, and foundation. A very few, perhaps, go so far as to make them with hand-saw and plane. But no one whose time is worth any thing can afford to fuss with hand-tools. A good foot-power buzz-saw is an acquisition; but after one has pumped the thing for half a day at a time he begins to wish heartily that he had a little steam-engine, or some sort of power that would take that "tired feeling" out of his legs; for it is a tremendous job to make hives with a foot-power buzz-saw, as I know from experience years ago before we had our factory. Steam-engines are rather complicated to run; the steam and water must be watched; and there has always been a fear that the "blamed thing would burst." But very lately gasoline-engines have been brought down to a fine state of perfection, so that any one can run them, and the cost of them is now so low that one can not afford to buy even a steam-engine. I believe also that, for economy of running, the gasoline engine on small powers is ahead of the steam-engine.

Ascertaining that the Pierce Engine Co., of Racine, Wis., were making an excellent engine at a low price, I solicited their advertisement, telling them that there are hundreds of bee-keepers, doubtless, who would patronize them if they only would let themselves be known through our journal. Their card will be found in another column, and I suggest that our readers who are interested write to them for their catalog and price on one and two horse-power engines suitable for running a buzz-saw for doing light work.

If you buy one of them, after you get your shop all rigged up get a photo taken of the inside and send it to us, and I'll show you up.

There is real fun, to one of a mechanical turn of mind, in making things; and even if they are not nearly as good as the factory goods, there is a sort of satisfaction in thinking they are your own make.

W. S. PENDER.

WE have just enjoyed a visit of several days from Mr. W. S. Pender, of Australia, one of the leading bee-keepers of his country. He is now making a tour through the United States in the interests of bee-keeping; and as he goes about from place to place he has note-book in hand, and jots down every thing he can pick up. He goes back to his own country expecting to take with him, or order shortly after, a full set of machinery, including engine and boiler, for starting supply-manufacturing in Australia.

His father, Mr. W. L. Pender, made a tour through this country during the World's Fair in 1893. Both the senior Pender and W. S. by profession are architects. Mr. W. L., as well as his son, has long had a side issue—bee-keeping—in connection with manufacturing bee-supplies. W. L. finally dropped out, leaving the supply business to the management of the boys.

Mr. W. S. Pender is one who has accomplished not a little in the interests of bee-keeping for New South Wales. It was through his personal influence that the unjust restrictions regarding the mailing of queens to Australia were removed, so that now queens

Digitized by Google

can be sent from here to Australia for 4 cents in place of letter postage, or about a dollar.

Mr. W. S. Pender has also distinguished himself as a queen-breeder, his choice stocks being of the five-banded sort. Among his other accomplishments he is a microscopist, having made the study of foul brood and of bee-paralysis a specialty. He has written considerably for the bee-journals of America; has been connected with various publications in Australia; and it is safe to assume that there is hardly a bee-keeper in all Australia who is better informed than he.

GLEANINGS predicts for the firm of Pender Bros. a bright future; and although they will doubtless enter into direct competition with ourselves we wish them all success.

THE SEASON IN CALIFORNIA; THE RECENT RAINS; PROSPECTS.

A WEEK or so ago it seemed to be an assured fact that the honey crop in California, north as well as south, would be an almost complete failure; but according to the newspapers, at the eleventh hour copious rains—yes, even floods—have been coming down in the northern part of that State. The following letter, under date of Mar. 16, from Mr. Martin, gave us a slight ray of hope:

Yesterday was set apart by the good people of this city as a day of fasting and prayer for rain, and it commenced raining in the night, and the end is not yet. To show the feeling in the matter here I will tell you what one of the judges said: "If one day of fasting and prayer will not suffice we should have two days or more, or a genuine humiliation." Then he cited instances where answers had come to such humiliation and prayer.

This rain has been coming down the coast for two days, but heretofore the rains have gotten to about such a point and then passed off to the east and left us in the dry belt. This time we are favored, and it commenced raining about midnight, and is coming in showers. J. H. MARTIN.

Los Angeles, March 16.

A few days later another one came to hand under date of Mar. 25, giving still more hope, and here it is:

Agreeably to my promise that I would write you again about our rains before your next issue, I would say that the rains in this locality have amounted to over two inches, and the weather has been quite humid for the past week, with occasional mist. The central portion of the State has received a greater amount of rain than we have. Northern California has received more yet. I have recent advices from Siskiyou Co., and the farmers and the miners are jubilant over the prospects. In fact, all California is wearing a smile. Grain that was sown early had become withered, and it looked as though it had been run through an oven; but under the influence of the rains it is putting on new life, and the fields are green again. I notice that sage has made a good growth here, and I am sure that, with later rains, it will yield honey this season, for its blossoms will be two or three weeks later than usual.

At this writing we have every indication of more rain; the skies are almost in a dripping condition. The blessings of Providence through the rains are of untold value to this country. J. H. MARTIN.

Los Angeles, Cal., March 25.

And here is another letter, from another correspondent, dated Mar. 25:

This is the fifth day of an abundant rain in this part of Northern California (Sonoma Co., 50 miles north of San Francisco). Abundant crops are now assured for orchards and vineyards; and pasturage, which would have suffered with only the 6 inches of rain which previously fell, will now be ample with the 19 inches to date, and the probability of more falling. The fruit-bloom is nearly over in this section, and bees have done well, having stored considerable surplus.

FREDERICK WEBLEY, M. D.

Santa Rosa, Cal., March 25.

Probably it is too early yet to form much of an idea of what the honey season will be in *Southern* California. It will be short, probably, but even then it will save the remaining bees and doubtless millions of dollars' worth of fruit besides, as well as general farm products. May these showers of God's blessing prove to be a spiritual uplift.

While the winter has been severe, we here in the East have hopes of a large amount of clover. The frequent rains and great amount of snow give us room for encouragement.

LATER ENLARGEMENTS AND IMPROVEMENTS AT THE HOME OF THE HONEY-BEES.

ELSEWHERE we have referred to the fact of our having just installed a 400-horse-power Babcock & Wilcox boiler, costing an even $3200. Our old boilers, consisting of a battery of three, of 60 horse power each, have long proven inadequate to do the work. At the beginning of the season we were in hopes that they would be sufficient to enable us to get through this year at least; but as the season went on, it became very evident that we should have to increase our boiler capacity, and that right speedily. There was not room to get in another 60, so the only way was to put in one big unit and throw out two of the old 60's.

The engineer just informs me that we are developing something like 325 horse power. Every machine in the establishment is busy. We have one planer alone that takes anywhere from 25 to 40 horse power to drive it; a band-saw that takes another 30 horse power; a hive-dovetailer 25 horse power more; big exhaust-fans to take sawdust and shavings away from the separate machines, that take, all told, something like 75 horse power more; and, as I said before, there is a 100-horse-power electric-power generator; two 60-horse-power electric motors; two 5 horse power; a 7½ horse; 2 horse, a 3 horse, a ½ horse, and a ¼ horse power. One boiler and one engine furnish the motor power for the entire plant. Our enlargements and new machinery recently installed enable us to keep up with our orders without running nights—a recourse that should be avoided wherever possible in the interests of good and accurate workmanship.

As our readers know, we are running all the departments, except those nearest the engine, by electric transmission. Two pairs of copper wires carry the power silently to the destined points, and there connect with the electric motors mentioned above.

The electric system, so far as tried, is very satisfactory. It is very expensive, but produces independent and regular power. The big planer has one 60-horse-power motor to run it Whenever this big machine is started a switch is thrown in, and in a moment more the motor begins to whir. As soon as the planer job is finished the switch is thrown out, and all the power is stopped.

Digitized by Google

Recompense no man evil for evil. * * Live peaceably with all men. * * Avenge not yourselves. * * If thine enemy hunger, feed him; if he thirst, give him drink.—ROMANS 12:17-20.

The sentiment of the above extracts from the 12th chapter of Romans is an exhortation that runs all through the Bible. The Savior's words especially seem to be full of the very same idea. He said, "Love your enemies; do good to them that hate you;" and, in short, the whole spirit of the Bible seems to plead with mankind to forget and forgive. Let go. Never mind. Even if a man has wronged you and abused you, do not lay it up against him. It is not worth while. Sermons have been preached on this point ever since the world began; but somehow mankind seems to be of *earth* and not heaven, notwithstanding. Not only unregenerate humanity pays people back in their own coin, but even church-members forget themselves, and return *evil* for *evil*. Yes, in spite of all *my* teachings and exhortations on this subject, even *I* let spite get into my heart. Well, a new thought has been coming to me lately along this line. When we get where we can really love our enemies we sometimes make the wonderful discovery that they are *not* enemies after all. We were making a mistake. I have had some pleasant experiences in this direction. Somebody who, I felt sure, disliked me, and who seemed to take pleasure in hitting me a clip, comes out in a new light. He says in actions, if not in words, "Why, bless your heart, Mr. Root, I am not an *enemy* of yours. I like to poke fun at you about your queer ways, and sometimes I smile to see you fighting your battles against selfishness like the rest of us; but I have never laid up any thing against you; and when you come right down to it I am more on your side than anywhere else." Then it begins to occur to me that one of my besetting sins is in being in too great a hurry to think evil where no evil is really intended. Sometimes I am accused of having too much faith in people; but, oh dear me! if I do once in a while get imposed upon, there are other times without number when I do not give people half the credit they deserve; and, oh how it does rejoice my heart to find out that some persons (some of the boys, perhaps) are a good deal better people than I had given them credit for being. Let us now apply these matters to the actual business of every-day life. I wish to submit to you a letter that came to us almost a year ago.

Gentlemen:—For the $2.60 inclosed, please ship me the following goods as soon as possible, and prepay the freight, and send me freight-bill, and I will remit the freight by mail. T. D.
May 27, 1898.

The goods went promptly; and when connecting lines refused to carry them any further without prepayment of freight (for friend D. lives at what is called a "prepaid" station) we sent promptly the 43 cents to have the goods go on through, and the book-keeper asked him to remit us the 43 cents according to promise in the above letter. Nothing was heard from him, however, until the following, which came about a month after the first letter:

The A. I. Root Co.:—The wire netting I ordered of you May 27, which you shipped June 4, has never yet reached me. Please trace it up as quickly as possible, and have it forwarded through at once. T. D.
June 28, 1898.

On receipt of the above we sent a tracer, but this tracer seemed to do but little good, as you will see by the following:

Gentlemen:—I have your card, dated July 2, saying you had sent a tracer after the roll of wire netting I ordered from you May 27; but up to this time I have not yet received it. I can not wait any longer for it, as I wanted it to make a poultry-yard; and if you can't find it you must either send me a roll at once or return my cash by return mail. I hope you will give this your prompt attention.
July 16, 1898. T. D.

The above illustrates a thing that comes up a good many times in business—yes, a good many times in a *large* business. A railroad company does not often lose goods, but a loss happens once in a while; and a good many of our customers seem to take it for granted that we do, and ought to by rights, pay the money back when the goods do not come. In such cases we have to explain that we can not do this. After we hand the goods over to the railroad company according to order, our responsibility is at an end. Of course, we present a bill to the railroad company, and follow the goods up until the company does make good the loss; but sometimes it takes almost a year to get the money back, and in years past we have actually lost several hundred dollars by peculiar combinations of circumstances. Just as soon as we can get the money back when the goods are lost and can not be found, we return it to our customer; and where delay on account of the loss of the goods makes much trouble we often send them again upon a written promise from a good man that he will take *both* lots in case both reach him. To undertake to make good all losses in transportation is more than we can stand with the small profits we make on our goods. I know seedsmen often guarantee safe delivery; but they charge enough so they can stand the occasional loss of a package. We explained the matter in answer to the letter above, but heard nothing more about it until we received the letter below:

Gentlemen:—The wire netting I ordered from you May 27, and which your bill shows to have been shipped June 4, has never yet been received. And I therefore inclose you the bill and bill of lading, and you will please put in the bill to the railroad company, and make them pay for it as soon as possible, as I don't want to lose it. Please attend to it at once for me; and as soon as you get it keep out the freight charges on the wire and send me the balance. You will please give this prompt attention.
August 1, 1898. T. D.

The above letter seems to be in the right spirit; and at the close of it you will notice the first mention of the 43 cents we advanced. And now comes a strange thing in the proceeding. The railroad company sent us word that the goods had been traced up according

Digitized by Google

to our orders, and delivered to friend D. a long while before his last letter was written, and our book-keeper then decided to give up the 43 cents advanced, and let it go, and pronounced our customer a bad man. The matter never came to me, for the transaction was so small that it was not considered worth while. Friend D. never replied, admitting that he had received the goods, nor did he ever send us the 43 cents. The book-keeper decided that D. was trying to get pay for the goods *after* he had received them. The railroad company made some sort of report—at least the book-keeper thinks so*—that by some means he got the goods without signing a receipt for them; and the book-keeper thinks friend D. felt vexed because the railroad company had delayed them so long, and was going to try to get the said company to pay him for them, even while he had them in his possession. Now, I do not believe this can be true. The letters sound honest and straight; but at this late date it may be a hard matter to get at the real facts in the case. We will now let the above rest for the present. When the letter below reached us, as the cash was inclosed it did not come to the book-keeper at all:

Gentlemen:—Please find inclosed my check for $10.50, for which please ship me by freight two bushels of alsike clover seed. Send bill of freight, and I will remit it to you in stamps. Please ship as soon as possible; also please quote me your wholesale prices on 5 to 10 rolls 48-inch 2-inch-mesh poultry-netting.
Feb. 28, 1899. T. D.

As the above order was for alsike clover it came into my department, and in the spring of the year all of my helpers have strict orders to *rush* clover seed, for it is exceedingly important that it be put into the ground at just the right time. But no one noticed that it was from the man who owed us the 43 cents for freight prepaid last year; but when they applied to the book-keeper for the money to prepay the freight so the seed could go on, he replied at once to the effect that we had advanced money to that man about a year before, which he never paid; and I do not know but he smiled a little bit when he put the two items together and informed our friend and customer, that, on receipt of 72 cents, covering both items, the seed would go on. Permit me to say here that I knew nothing of this transaction whatever. If it had come to my notice I would have said, "Why, this man has sent us $10.50 in cash, and it is very important that the seed be rushed through as he directs. We certainly can not think of stopping a shipment worth $10.50 for the paltry sum of 29 cents."* But I did not see it, and so the matter went along, and the letter inclosing the 72 cents came very promptly, you may be sure, and here is what came with it:

Gentlemen:—Inclosed please find 72 cts., balance due you on freight on wire netting and alsike clover seed. Please ship the seed as soon as possible. By the tone of your letter you think, I guess, that I am not a man of my word, and that you are afraid to trust me to the freight. I can buy more goods on time than A. I. Root is worth, if I want them; and as you act so little about such a small sum of 72 cts., I don't think A. I. Root has any more religion than a cow has: and this will be my last order to you while I live. I had intended to remit to you freight on netting and clover seed as soon as I got a freight bill; but it is all right. You can ascertain my standing by writing to the list of references I gave you. T. D.
March 8, 1899.

The above letter came directly to me. In fact, the lady who opens the letters makes it a practice, by my express desire, that any thing reflecting severely on myself or on the standing of our company, shall be submitted to me at once if I am around. The first thing we did was to direct the connecting railroad line, where the seed was stopped, to start it going as soon as possible. Then I wrote as follows:

Friend D.:—Yours of March 8 was answered by Mr. Calvert yesterday, and then referred to me. The stopping of your goods for the small amount demanded by the railroad company before they would ship any further was entirely in the hands of the book-keeper. I knew nothing about it at the time or I might have done differently. The book-keeper declined to open any further account with you because he had not succeeded in getting the small balance that we advanced last summer under similar circumstances. Furthermore, I find you wrote three or more letters complaining that you had not received wire netting, one of them dated as late as Aug. 1 last season. The book-keeper says that the railroad company shows the goods had been delivered you long before that date. Now, I am sure there is a mistake or misunderstanding somewhere. I do not believe you would keep writing us, "Goods have not come to hand" if you had received them; but you have never made any explanation of this matter, and never paid the small sum we advanced. You may be aware, perhaps, that we have lost quite a little by advancing similar sums in order to get goods to destination. I can not find by the correspondence that you ever agreed to pay this money we advanced as a kindness to you. We are not responsible for delays on the part of the railroad companies nor for loss of goods. Again, when you made the order this year you did not say a word about that little balance remaining unpaid. Had I known of it, knowing that your two bushels of clover seed ought to be in the ground, I would have paid the money out of my own pocket rather than to annoy you in this way; but you certainly can not blame our book-keeper very much under the circumstances. Now friend D., I am not going to talk hard to you, even though I do think you are greatly to blame, and I am very sorry

* Please do not think, dear friends, that I am putting any blame on our book-keeper. The head book-keeper occupies a very important place, and I think most business men would prefer to have their book-keeper err a little in being over-careful rather than being too loose in the matter of handing over hard cash. When we *sell* goods there is supposed to be some profit to pay for the expense of keeping books, paying for postage-stamps, etc.; but where we take cash right out of the drawer, simply to do somebody a kindness, and ask him to please return promptly just the amount we have advanced, there is no sort of profit anywhere. We neglect our own business, give our time, and if the friend who has been accommodated does not respond promptly, we waste postage-stamps also. I suppose more or less of this kind of work has to be done; but a good book-keeper doesn't often get caught the *second time* in that way. If the proprietor decides to throw away some cash just because he wishes to help a customer get his clover seed in the ground in proper time it is all right; but the book-keeper is not expected to take such responsibility.

* I presume our readers are already aware that we guarantee freight on every thing we ship by freight or express. The railroad company, knowing we are responsible, usually push things along to their destination without delay; but these prepaid stations seem to be an exception. In the letter dated Feb. 28, 1899, T. D. says, "I have no agent at our station." If there were an agent there, of course he could hold the goods until the back charges were paid. All through Florida, and in many new regions of the country, the railroad companies frequently, for the sake of accommodation, drop freight almost anywhere out in the country, the only condition being that the charges be fully prepaid, for a train of cars can not stand still waiting for somebody to make change, even if he were on the spot when the train arrives. I make this explanation in order that some of our friends may have more charity for the railroad companies.

Digitized by Google

your clover seed did not go right along without any delay.

I am very glad indeed if you are so well fixed; but I *do* think you might take better care of little amounts where cash has been advanced simply to do you a favor. The goods were shipped from here promptly, but were stopped by connecting lines at Bellaire.

Yours very truly,
A. I. ROOT.

P. S.—Since the matter has been called to my attention I have decided that we can make the two bushels of alsike $10.25 instead of $10.50; therefore we inclose in this stamps to the value of 25 cts.

Now, dear friends, I have a double purpose in submitting this whole matter to you. It illustrates the way in which hard feelings and bitter words come up. It explains, too, why it is that so many people feel bitterness and hate toward the railroad companies. Ever since we have been in business we have been greatly annoyed by having goods stopped, by express as well as freight, because connecting lines would not carry them any further without having the charges paid in advance. The reason of this is, that railroad companies so many times carry goods long distances, which are never called for at all. Sometimes people go and inquire about the charges, and then leave the goods, and never go after them. Perhaps they laugh about it, and say they will just let the railroad company keep them. Potatoes are frozen in transit. The consignee shakes the barrel, concludes they are frozen and worthless, and goes off leaving them on the railroad company's hands as if the latter were responsible for the blizzard. There are thousands of like cases. Sometimes the company collects the freight charges of the shipper, but may be it will cost more than they are worth to do this.

Again, some railroad companies are more accommodating than others. One company receives goods without asking any advance;* but when they turn them over to another line this line refuses to take them any further without payment in advance. Now, the *agent* of the company has no authority to take even so small a sum as 29 cents, and prepay the charges on $10.50 worth of clover seed; therefore the goods must be held until they send word back to the shipper. Well, now, the shipper may have had lots of experience like that of our book-keeper. He has paid a few cents for A, B, or C, and then used some postage-stamps and time to explain the matter, telling him they advanced the hard cash just to do him a kindness; but too often A, B, or C lets it go and forgets it, or says to himself, "Well, I guess I paid him enough for his clover seed, anyway. I think he can stand the 29 cents;" and pretty soon the shippers get to be like the railroad companies. They say, "We do not hand over the cash for anybody." You may, perhaps, be aware that many of the large department stores that sell on such small margins are following the same plan. And, by the way, I wonder if our friends realize the expense of keeping a set of books necessary to have open accounts with thousands of people scattered all over the land—especially the expense necessary to send repeated statements to people who will not say a word for almost a whole year.

Now, there is another side that might be taken up. There is usually but a small profit on clover seed, it is true; but in the above case there was sufficient profit so we could have afforded to lose the 29 cents, even in case he did *not* pay it; and had I gotten hold of the transaction this would have been done. Yes, I think that, according to the spirit of the string of beautiful texts at the head of my talk, I might have done still more. If a man has bought some clover seed of me which ought to be put into the ground at once, and even if it required me to advance *all* my profit, and a little more, in order to help him get his seed in at the right time, I think I would advance it. But, of course, circumstances would have much to do with a case of this kind. I believe the clerks all know my disposition to be liberal; and I do not know but sometimes they keep things from me because they know I would trust a man when he ought not to be trusted. Well, if this is true I am glad that I err on the side of charity and love. Our friend speaks of references that he could give us. Yes, he did give us references; but we could hardly be expected to write for references when a man asks for a credit of only a few cents.

And now let me go back to the original 43 cents advanced first. I suppose friend D. did not send it at first because he did not feel in duty bound to pay the freight until he had received the goods; and when it looked as if he would *never* get them, he did not see why he should pay any freight at all; and, in fact, he asks us to take this trifle out of the value of the goods when we receive it. As to why he did not send it *after* he received the goods, I can not answer, nor can I see why he did not include this 43 cents when he sent the $10.50 for the clover seed. Perhaps he forgot it. I do think he owes us an apology for asking us to collect of the railroad company the value of the goods which he already had in his possession, or he should at least explain matters in some way; but I still think, from the tone of his letters, that he means to be a fair sort of business man. In regard to his threat of not trading any further with us, such things never worry nor disturb me. We invest every year large amounts of money in advertising, it is true; but I have never yet wanted *all* of the trade. If I have *wronged* anybody, then I am worried; but if he decides to trade somewhere else when I am not to blame, it does not trouble me at all. What is my loss will be gained by some other brother; and I am sure of this, for the Bible says so. If I serve my fellowmen in an unselfish and Christianlike manner we shall always have plenty of patronage. The things to worry about are the sins in one's own heart, and not what his neighbors may do.

* By the way, perhaps I should explain that, where a railroad company sends for advance payment, they bring up to our office a written request, but do not leave any copy of such request. They go to the book-keeper with the statement; but the statement is carried right away again. I have tried to get our clerks to copy every such request, and to keep the copy. Even a few lines scrawled with a pencil on a piece of waste paper should be copied and preserved. In the above case we have no means of knowing just what the railroad company did report besides what the book-keeper can remember of the transaction.

Digitized by Google

A good many times I am called upon to settle difficulties among bee-keepers. Both parties have got their feelings stirred up, and each decides the other is a rascal. Sometimes I plead repeatedly for more charity on both sides. There is one point I fear our friends often forget. Suppose a man advertises bee-supplies, and sends out a circular. Then somebody sends him fifteen or twenty dollars for goods, perhaps right in the midst of the honey season; but the supply-dealer, if he is just starting, and is doing a small business, is likely to be sold out. Then there is a delay that is expensive. Now, I always tell the man who receives the cash that he must be very careful about being harsh or severe with such a customer. When somebody sends us money we should treat him as we would an honored guest. If a visitor comes to your home when you are having almost a wrangle about something, how quickly you all put on a smiling face and drop the unpleasantness! The new comer is your *guest*, and you are in honor bound to be *courteous* and *pleasant* in the presence of visitors. Now, the man who sends you money for something should be in one sense a privileged character — a sort of honored guest, and he should be accorded unusual courtesy—at least until you have sent him his goods; and even after that you should be a little more respectful to him because he has *traded* with you. You are under no particular obligation to be courteous and smiling to every *tramp* that comes along (especially if he walks on your clean porch with his muddy boots); but common sense as well as Christianity requires you to be courteous and pleasant to people who trade with you. I would put up with a great deal without quarreling, from a man who sends me money through the mails. I would be very careful about calling him a rascal, or even an enemy.

I have gone over this just because I fear a good many of our beginners in business fail because they are not sufficiently ready to be courteous and obliging. A man who would send us $10.50 for clover seed could not well be considered an enemy; and I rather took pleasure in writing that little postscript where I decided to give him a little rebate on two bushels sent at one time, over the printed price for a single bushel. I hardly need mention how much time and money are *worse* than wasted in neighborhood quarrels. Yes, every little while we hear of people who lose their health by getting into a quarrel, and quite a few have lost their lives by simply allowing themselves to get into a fit of uncontrollable anger. "If thine enemy hunger, feed him; if he thirst, give him drink."

Mar. 28.—The following is just at hand.

I ordered the wire netting from you early in the spring, and it did not reach me until November. This I can prove to you by my postmater here, who keeps the wareroom where goods are kept in as they are unloaded from the train. The reason I did not send you the freight on wire netting any sooner last year was that I did not want to pay out money for freight and be out of the wire netting also, and not get the netting when I needed it so badly. I had intended to order a lot of bee-supplies from you, and then include the freight on wire netting, but I forgot it when I ordered the clover seed. T. D.

GRAND RAPIDS LETTUCE AS AN ORNAMENTAL FOLIAGE-PLANT.

There is nothing that pleases me more in the way of foliage-plants than a bed of Grand Rapids lettuce when it is just doing its "prettiest." I told you last fall about replacing the soil in our greenhouse-beds, the same that had been there for five or six years. Well, in filling the beds anew I made up my mind that I was going to have the best combination to make plants grow that I could scrape up. First we had a pile of decayed sods that had been piled up in a heap for a year. We spread these evenly over the bottoms of the beds. Then we got some old black manure mixed with soil that we scraped up where an old barn had been taken away. We put on perhaps two or three inches of this. Then we put in about an inch of sand, and with this as much wood ashes as I thought the beds would bear —perhaps a quarter of an inch thick all over. Then we were ready to work it all up together. After sifting the top and making it smooth and level, we put on about a quarter of an inch of tobacco dust, to keep off the green fly. Well, this compost seems to have been a success. I never saw lettuce-plants grow nicer, and there has been none of the spots in the beds where nothing would grow that we had been noticing for some two seasons past. And, by the way, some of the boys felt so sure that well water was not as good for watering, especially in the greenhouse, we made different arrangements for watering. Very likely the hard water would not make so much difference in the open air, for we always have showers to dilute and wash off the effects of the hard water. The water from our hydrants is not hard, but it contains a large amount of soda — so much that in the greenhouse it makes the ground and sometimes the plants show a whitish powder where it has been used. Well, the lower part of our greenhouse has always been more or less wet in the paths after a rain. We have tile drainage, but our stiff clay, after being walked on so much, gets so it holds water in spite of the three drains. On the south side of the greenhouse there is a path that is lower down than the rest, and this has always been more or less muddy. At each end of this path we sunk a two-foot length of 18-inch sewer-pipe. We let it down into the ground so that it was a little lower than the level of the path. On top of this is a wooden cover, to make it safe to walk around, even in the night. Well, by lifting this wooden cover a pail or watering pot can be filled at any time; and so far during the past winter there has always been water enough in these little cisterns to supply the plants; and whether it is the water or the new soil, or both, at any rate we have a growth of lettuce and other stuff that just makes me happy.

Now to go back to the starting-point, I

Digitized by Google

would almost go to the pains of growing a bed of Grand Rapids lettuce just to look at, even if it had no value. The price has been down during the past winter because others are growing it; but even now we get 15 cents a pound retail and 10 at wholesale, and I think this pays very well. I do not know just how many pounds of lettuce can be grown on a square yard; but where it is managed just right, I tell you one can get a big lot.

CRIMSON CLOVER.

Once more crimson clover has wintered beautifully on our rich well-underdrained soil. As this is the fourth or fifth winter, I think we might call it a very sure thing in our locality and with our method of treatment. You may remember I told you of the wheat that lodged so badly last summer. There was enough seed left on the ground to make a very good stand. Well, the wheat grew so tall last fall that it fell down, and we sowed crimson clover right on it some time in the fore part of August. The clover was shaded and mulched, and it looked beautiful all during the fall, and looks just as handsome now; in fact, I do not believe I ever had any crimson clover that came through the winter looking so bright and green before. There are a few small spots where there didn't happen to be any wheat, and on these spots the severe weather has pretty nearly used up the clover; but the stand all over is, with the exception of these spots, just splendid. Of course, the wheat will stand up and grow; but I propose to turn the wheat, clover, and all, under just before the crimson clover gets into full bloom; and although I never heard of turning under wheat to grow potatoes, I am inclined to think it will work all right. Perhaps it is not practicable to furnish any sort of protection like this for crimson clover during the winter—that is, to do it profitably; but I think the clover would be a great deal better if it could have just about the kind of mulch that my lodged wheat gave it.

RECOMMENDING NEW VARIETIES OF STRAWBERRIES, ETC.

You may remember that, some little time ago, in visiting Matthew Crawford, he showed me a strawberry of such wonderful luxuriance of foliage that, had he told me it was a new variety, and very scarce and high-priced, I do not know but I would have given him $5.00 for a single plant. But friend Crawford is not that sort of man; and then he explained to me that the wonderful growth and luxuriance were not altogether on account of the plant, but in the way he prepared the soil in that one bed. It was light sandy soil, made very rich with old stable manure, and then the ground was pounded as hard as he could make it, with a stamper, something like what we use in setting fence-posts I went home and began to experiment on some of our plant-beds that had been manured so heavily so many years that they contained almost *too* much humus. We have a pounder worked by two men, that we use in making cement floors and similar work. I had two of the boys stamp the dirt in one of our plant-beds as hard as they could pound it. This was along in the fall, when the ground was dry, and would bear such pounding without injury.

About this time friend Thompson sent me half a dozen Darling strawberry-plants, and I think as many of the Earliest; also some Carrie. As he called these varieties all valuable I put them into that stamped bed. They all did wonderfully well, especially the Darling. In watching the new plants I fear I forgot somewhat the stamped bed, and gave the credit to the new varieties. At the same time I began experimenting with plants potted in jadoo fiber, and a great number of them were sent as premiums to our subscribers. The next spring these six Darling plants gave a nice lot of beautiful berries, away ahead of any thing else unless it was the Earliest; and without thinking much about it I helped to boom the Darling, which the originator held at a very high price. Now, I have been greatly disappointed because we have not had more favorable reports of the Darling. In fact, on that account I have dropped it from our list of strawberries. Margaret and Nick Ohmer were also set in a pounded bed, and they both made an immense growth, and produced wonderful berries. I have been putting all of my new varieties in pounded beds, because, when one is anxious to get as many plants as he can, as soon as possible, he must furnish the best of conditions; and not *all* plants will pay him so much better in highly fertilized and compact beds than they do in the open field. After I put the Darling and Earliest in the open field and gave them the same chance as the other varieties they have been very disappointing in our locality. I learn from others, though, further south, that in some places they do well.

From this I have been learning a lesson: We should be careful, each and all of us, about recommending a new plant before we have given it *field culture* right along with the others. Perhaps I might here speak of the Gault raspberry. There has been a good deal of complaint, and quite a few have called my neighbor Gault a humbug and a swindler. Now, this is very wrong. Mr. Gault did grow, and I suppose even yet grows, Gault raspberries by the acre. On his soil and with his treatment they bear splendid crops away along till frost; and I think they do year after year. When I was regretting that I invested so much in the Gault raspberry, and gave it so much of a recommend one of my boys remarked that they had some plants at home which they got of me, and they were doing splendidly, and bore nice crops every year. A second and third person in my employ said substantially the same thing. They declared they did not consider this raspberry a humbug at all; but the plants that we sent all over the country, far and near, have, so far as I can learn, been *mostly* failures. If our readers will forgive me I am going to be more careful in the future. I will tell you how things have done on *our* grounds; and if I deem them worthy I will furnish you sample plants or seeds at a very low price; but we should all learn better than to invest heavily in any

Digitized by Google

thing until we have tried it on our own ground. The above was suggested by receiving Bulletin 98, on small fruits, from the Ohio Experiment Station. Here is what this bulletin says about the Darling:

An early variety that gives fairly good results the first part of the season, yielding one or two good pickings. After that the berries run very small. It can not be recommended as worthy of further trial.

I am a little surprised that they did not say something about its being *extra* early. Their report on strawberries is mostly on the new kinds; and I confess it was a real pleasure to me to get an unbiased report from disinterested sources and from honest students in regard to the new strawberries that have been lauded so much through our catalogs. I think it will pay to send for this bulletin. Simply write to the Experiment Station, Wooster, Ohio. I will briefly go over what they say, mentioning some that are now much talked about:

The Clyde still ranks high, but they call it rather soft for shipping, and not of the highest quality.

Glen Mary they also recommend, but it is not quite as prolific as the Clyde, and is also too soft for shipment.

The Margaret is a superior berry, but must have high cultivation, and perhaps pounded beds such as I have described. It does not succeed under all conditions.

I am very glad to see they agree with me in recommending the Rio as one of the very best extra earlies. It is not only very early, but a nice large berry, very much superior to Michel's Early, Earliest, and all of that class.

Sample, after one season's trial, seems to warrant nearly all that has been said in its praise.

The Seaford they find rather soft, and not as productive as one might expect from the high recommends it has received.

Here is what they have to say in regard to strawberries in their summary on the last page:

Strawberries require a large quantity of water, and this is usually more easily secured by thorough cultivation than by irrigation.

In an experiment in soil culture in 1897 there were found to be nearly five hundred barrels of water more per acre in the cultivated than in the hoed plot. This influenced the growth greatly, and in the succeeding season increased the crop from 10 to 68 per cent.

In cultivation it is better to use a plank clod-crusher, at least half of the time, rather than a cultivator all of the time.

The newer varieties of strawberries most highly commended are: Beauty, Berry's No. 2, Brownie, Clyde, Enormous, Glen Mary, Jerry Rusk, Noland, Orewiler, Sample, Superb.

This bulletin also includes reports on new raspberries, blackberries, currants, and gooseberries.

Matthew Crawford writes in a recent number of the *Strawberry Culturist:*

The man who believes that a horse-chestnut carried in his pocket keeps off the rheumatism, or that a horseshoe over the door keeps off spooks, can not be convinced to the contrary; so the man who *knows* that selection is the great thing in strawberry culture, *especially if he has plants for sale*, can never be moved. These positive people have lots of followers, because the majority of people like to have some one to do their thinking.

It seems to me there is too grand a truth in the above to have it dropped and lost sight of.

40 per cent Discount

on 1898 Fences, and

10 per cent Discount

on Supers packed with 1898 Fences.

In order to clean out from our branches all that remain of last year's stock of fences, and supers packed with them, we offer them while they last at a sufficient reduction to make them move. Last year's fences, though not perfect, can be used by those who prefer cheapness to perfection. The cleats are ½ in. wide, where we now make them ⅝, and 12 to 2 inches thick, while we now make them 13 to 2 inches. Slats are a little closer together in some cases than this year. These changes are so slight as to be scarcely appreciable in results. There is some stock at all of the addresses given below, which we offer while it lasts, as follows:

'98 P fences,	60c per 100,	$5.40 per 1000.	
'98 I "	75c "	6.50 " 1000.	
'98 S "	70c "	6.00 " 1000.	
'98 2P or 2I-8 supers	$1.10 for 5;	$ 2.20 for 10.	
'98 4P or 4I-8 "	1.80 for 5;	3.60 for 10.	
'98 AD52P or 1-8 hive	5.00 for 5;	9.00 for 10.	
'98 AD64P or 1-8 hive	6.00 for 5;	11.00 for 10.	

Usual extras for 10-frame supers and hives

A full supply of latest goods can also be had of

The A. I. Root Co., Medina, Ohio.

118 Mich. St., Chicago, Ill.
1024 Mississippi St., St. Paul, Minn.
1635 W. Genesee St., Syracuse, N. Y.
10 Vine St., Philadelphia, Pa.
Mechanic Falls, Maine.

25c for one year's subscription for the brightest, newest, and best MUSICAL JOURNAL in the U. S. Five pages new and original songs and music in each number. Sample copy **FREE.**
The Smith & White Co., Cleveland, O.

For Sale. Seventy-five colonies of bees on eight-frame Langstroth and Heddon hives at $3.00 each. Also a quantity of hives, combs, supers, and section-cases.
F. R. DAVENPORT, Box 388, Kalamazoo, Mich.

EARLY QUEENS NOW READY, $1 00; six for $4.50. After April 15, 75c; six for $4 25; 12 for $8.00. May, six for $3.75; dozen for $7.25 Warranted; safe arrival guaranteed. Two yards. Big stock of fine queens carefully reared by Doolittle's method. Free circular. **J. B. CASE, Port Orange, Fla.**

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.
W. H. LAWS, Lavaca, Seb. Co., Ark.
In writing, mention Gleanings.

CASH FOR BEESWAX.

Will pay 26 cents per pound cash, or 28 cents in trade, for any quantity of good, fair, average beeswax, delivered at our railroad station. The same will be sold to those who wish to purchase, at 33 cents for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO. Medina, Ohio.

Digitized by Google

OILED COTTON GLOVES FOR HANDLING BEES.

Some of the large honey-producers in New York State and elsewhere have been using, for handling bees, gloves made of heavy cotton drill soaked in linseed oil, and dried. The oil treatment, when properly done, makes the gloves sting proof. We have a sample pair of these gloves, and have made an order for a supply for stock. They are made in three sizes —small, medium, and large. The small correspond to ladies' sizes in rubber; the medium to gents' sizes, and the large to extra sizes. The price is 50 cents a pair. We shall not be prepared to supply them before May; but in the meantime we shall be pleased to book orders for samples, if any wish to try them.

THIN-BASE FOUNDATION.

We should like to hear from those interested in the new thin-base foundation. If enough interest is taken in it to warrant, we will increase our facilities for making it so as to reduce the cost, and thereby get the price down to perhaps 75 cents a pound this season. Bear in mind, it has high walls as well as thin base. There are about 5 pieces in thickness to an inch, so that it occupies about 2½ times the space of the same weight of ordinary super foundation. It is neatly packed in paper boxes of ½ lb. and 1 lb. each, and in sizes for the 4¼. the 4x5, and the 3⅝x5 sections. Prices, for the present, as given in last issue of GLEANINGS. Send for small free sample if you want to see what it is like before you order.

ADVANCING PRICES.

The scarcity of metals of various kinds results in continually advancing prices. We ordered a carload of tin plates early in December, and have not received them yet, and have no definite assurance when we shall get them. In the meantime prices have advanced over thirty per cent. We recently placed an order for a carload of nails at $12.00 a ton more than we paid in December. Five-gallon square cans have advanced 10 to 12 cts. per box of two cans, and other tinware in about the same proportion. We are fortunate in having a good stock. We will not advance our prices till compelled to do so, but that may be very soon.

ONE-GALLON SQUARE CANS.

We have sold so far this season, mainly for maple syrup, about 13,000 one-gallon square cans, and we have 6000 more just arriving from the factory. Most of these have 1¼-inch screw cap, and we sell them at $1.00 per 100 less than the regular lever-seal can shown in our catalog. Some have a large 2¼-inch cap in the center of the top of can, with a wire bail. These are 25 cents per 100 more than the small caps. Price of these cans, with 1¼-inch cap, $9.00 per 100; $80.00 per 1000; with 2¼-inch cap, $9.25 and $82.50 respectively. These prices hold only while this stock lasts. If they go off as fast as previous stock, they will not last ten days. Send in your orders if you want any.

BUSINESS AT THIS DATE.

Last year we received during the month of March about 2000 orders, while this year in the same time we have received about half that number. A year ago we began running night and day the first of March; this year we are turning out as many or more goods during an 11-hours' day run; and unless business increases very materially we shall be able to get along this year without running nights. With the exception of some carload orders we are shipping orders promptly. In some cases, where odd or special goods are ordered there is a little delay. We are gaining fast on carload orders, and expect, by the middle of April, to be pretty well caught up.

CARLOAD SHIPMENTS.

Since reporting the middle of February, we have shipped over thirty full carloads as follows: One to Prothero & Arnold, Dubois, Pa.; one to W. W. Cary, Lyonsville, Mass.; two to Geo. E. Hilton; one to Thomsonville; the other to Fremont, Mich.; one to O. P. Hyde & Son, Hutto, Texas; three to our branch at Syracuse; one to Philadelphia; one to St. Paul; one to Sacramento, Cal., and one to Los Angeles, Cal. The latter was ordered back before it had gone far, because of the continued drouth One to Rocky Ford, Colorado; one to Vickery Brothers, Evansville, Ind.; one to A. F. McAdams, Columbus Grove, Ohio, sixteen carloads for export, besides four more going within a few days. We are sending a very large car for Salt Lake City, Utah, and another for Reno, Nev. This will still leave six or eight cars not shipped, for which we have orders entered. We have shipped one-half more cars this year than we had shipped up to the same date last year. We still have a large stock to draw on, and are in very much better condition for filling orders promptly than we were a year ago.

NEW BOILER.

We now have our new 400-horse-power water-tube boiler connected with the new engine, and we are no longer troubled for lack of steam. The shavings and sawdust collected from the machines by the exhaust-fans furnish all the fuel needed so far, so that we not only need no coal, but have wood and kindling to sell. Our old boilers are for sale, at least two of them; will give particulars to those interested.

SECOND-HAND BICYCLE: A $75.00 CLEVELAND FOR $39.00.

As our readers know, every season I get a new wheel, simply for the reason that I like to keep up with the times; and so far I have sold these bicycles to some of our readers. My Cleveland, referred to editorially on page 142, is practically as good as new—a $75.00 machine, and it has all the latest 1898 fittings. I had it fitted up to order. I am an advocate of large tires, because they are so much easier-running and longer-lived The tires on this machine are 1¾ inches wide and 2 inches deep; and for real solid comfort they beat any thing else I ever tried. The handle-bars are wood, and can be either dropped or raised. The saddle is the extra-wide Wheeler—the easiest saddle, to my notion, that was ever made. The chain is the celebrated Cleveland, hardened pin and link, and the sprockets are of large diameter. The whole is protected by a gear-case, and is nearly air-tight. I have ridden this wheel for a whole year, and I have not had to touch the chain during all that time. The price at which we offer this bicycle, for all practical purposes as good as new, the enamel and nickel being intact, is an even $39.00, or but little more than half price; and I would say that it is a far better machine than nine-tenths of the so-called high grades at $40.00 and $50.00

I have also a tandem, the list price of which was, in 1897, $150, and it cost us an even $104 It is one of the best machines that was ever built, and is in first-class order We will sell this for an even $40.00. Particulars on application. It will be necessary to speak quickly in order to secure these bargains. If they are not exactly as we represent, they can be returned at my expense. E. R. ROOT, Medina, O.

Special Notices by A. I. Root.

SOJA (OR SOY) BEAN—REDUCTION IN PRICE.

Instead of $2.50 per bushel, as in our catalog, read $2.00 per bushel; peck, 60 cts.; quart, 10 cts. Leaflet mailed on application, telling all about this legume.

SWEET POTATOES FOR BEDDING GROWING PLANTS.

This year we shall handle only two varieties—the well known Yellow Jersey and the General Grant Vineless. Either kind will be, ½ peck, 30 cts.; peck, 45 cts.; bushel, $1.50; barrel, $3.50. If wanted by mail, 20 cts. per lb., postpaid. We expect to have them ready to send out any time during May. Sweet-potato plants of the above will be ready during June and July. Price of plants: 10 for 5 cts.; 40 cts. per 100; $3.00 per 1000. If wanted by mail, 25c per 100 extra.

THE BIGGLE POULTRY-BOOK.

I find we have ten copies of these still on hand unsold. Now the Biggle Poultry-book, is a little one, but it is the handsomest poultry-book, by all odds, for the price, of any thing out. Aside from the colored pictures of the fowls, there are beautiful photos from

Digitized by Google

life, lots of little cuts that tell a good deal, and the whole is written in that bright racy style characteristic of the *Farm Journal*. This latter, as you know, is made up of valuable facts boiled down into a few words, and so with this poultry-book. The price, postpaid, is 50 cts. Perhaps I might mention that we had one single order for three dozen copies from Australia.

FROST; WHEN TO EXPECT IT, AND HOW TO LESSEN THE INJURY THEREFROM.

The above is the title of an exceedingly valuable bulletin from our good friend Willis L. Moore, Chief of the Weather Bureau. It explains all about frosts, in what way they do damage, and discusses most thoroughly all modern methods of protecting crops of all kinds from damage by frost and freezes. It considers the matter all the way from covering plants in cold-frames to protecting orange-trees in California and Florida. If you want it, send a postal card to the Weather Bureau, Department of Agriculture, Washington, D. C., and ask for Bulletin No. 23, on frost. This bulletin, if it could be in the hands of the proper people during the next few weeks, might save thousands of dollars. I have read it all through with exceeding interest, many portions of it several times over.

HUBBARD SQUASH SEED—ADVANCE IN PRICES.

I judge there must be a scarcity, for I notice the seed has pretty nearly doubled in price; and instead of the figures in our price list the best we can do until further notice is: Ounce, 5 cts.; pound, 50 cts.; 5 lbs., $2.25; 10 lbs., $4.00. I suppose almost anybody can grow Hubbard squash seed, but there ought to be some arrangement for disposing of the squash. We have canned pumpkin that will keep any number of years, and a nice article is retailed as low as three cans for 25 cts. Is there any reason why Hubbard squashes can not be canned in the same way? If so, then it is the canning-factory's place to furnish the seed. Of course, the strain would be good and pure, and none but nice squashes should be put into the cans, and the seeds saved only from these nice ones. As Hubbard squashes can be kept clear through the winter, the canning-factory would not need to be a large one, for, in fact, it could can squashes all winter at its leisure. And, by the way, is it not true that good Hubbard squashes always bring good prices, not only in towns and cities, but even in the small villages?

KEEPING FLIES FROM CATTLE AND HORSES; KEROSENE APPLIED WITH THE FAULTLESS SPRAY-PUMPS.

Several weeks ago somebody told us a spray of kerosene applied with these little sprayers would banish flies from horses and cattle instantly. He said the little machine paid for itself alone in keeping the flies away from his cow while he was milking. The letter containing this information seems to have been mislaid; but this is an exceedingly important matter. During fly-time the damage to horses and cattle both goes away up into the dollars, aside from the inconvenience of having the animals twitching and thrashing around instead of attending to the business on hand. Will others who have used these implements for this purpose let us know about it? As I understand it, pure kerosene applied in the form of a fine mist or spray does the work as well as any of the much-advertised liquids made for this special purpose; and will somebody tell us if the same arrangement will answer for expelling vermin from poultry?

HANDBOOKS ON GARDENING.

After visiting Henry A. Dreer's wonderful greenhouse covering an entire square acre, I introduced his little book, "Vegetables Under Glass," and we have had a large sale of it; in fact, it is being called for almost constantly. At the same time I made an editorial mention of two other books by Dreer. One of them, "Open-air Vegetables," is a companion to "Gardening Under Glass." The first book tells us how to start stuff under sashes, and the second tells us how to manage the same stuff after the sashes are taken off, or after the vegetables are moved from the greenhouse into the open air. Both books are exceedingly valuable, and by buying lots of them we are enabled to furnish them at the very low price of 20 cts. each; by mail, 23 cts.

There is another valuable book by Dreer, entitled "Grasses and Clovers, with Notes on Forage Plants," at the same price as the above. And, by the way, all of these books are most fully illustrated. A large part of the pictures are photos of the gardens, beds, sashes, shutters, and cheap greenhouses, as well as the plants. A great many times the pictures alone may be worth the price of the book to the purchaser. In addition to the above three books we have still another, by T. Greiner—"The Young Market-gardener." This book is also fully illustrated, and full of valuable hints. The regular price is 50 cts., postpaid; but we have about a dozen copies left that we will close out for 35 cts., postpaid.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.		[Price without postage.
8	Bible, good print, neatly bound	20
10	Bunyan's Pilgrim's Progress**	50
20	Illustrated Pilgrim's Progress**	75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6	First Steps for Little Feet	50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper	5
2	Same, board covers	20
5	Same, words and music, small type, board cov.	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05
5	New Testament, new version, paper covers	10
5	Robinson Crusoe, paper cover	10
4	Stepping Heavenward**	18
15	Story of the Bible**	1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

	"The Life of Trust," by Geo. Muller**	1 25
5	Tobacco Manual**	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15	A B C of Bee Culture, cloth	1 10
	Advanced Bee Culture, by W. Z. Hutchinson	50
8	Amateur Bee-keeper, by J. W. Rouse	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., §	2 36
21	Same, Vol. II., §	2 70
	Same, Vols. I. and II., postpaid	5 25
10	Bees and Honey, by T. G. Newman	90
10	Cook's New Manual, cloth	1 15
5	Doolittle on Queen-rearing	95
2	Dzierzon Theory	10
8	Foul Brood; Its Natural History and Rational Treatment	22
1	Honey as Food and Medicine	05
15	Langstroth Revised, by Chas. Dadant & Son	1 10
15	Quinby's New Bee-keeping	1 40
	Thirty Years Among the Bees, by H. Alley	50
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey-bee, by Thos. William Cowan	95

Digitized by Google

| British Bee-keeper's Guide-book, by Thomas William Cowan, England 40
3 | Merrybanks and His Neighbor, by A. I. Root... 15
4 | Winter Problem in Bee-keeping, by Pierce..... 46
| Bienenzucht und Honiggewinnung..... 50

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

MISCELLANEOUS HAND-BOOKS.

5 | An Egg farm, Stoddard** 40
5 | A B C of Carp Culture, by Geo. Finley..... 25
5 | A B C of Strawberry Culture,** by T. B. Terry.. 35

Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry**..... 35

This is T. B. Terry's first and most masterly work.

| Barn Plans and Out-buildings*.....1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15 | Draining for Profit and Health, Warring.....1 35
10 | Fuller's Grape Culturist**.....1 15
8 | Domestic Economy, by I. H. Mayer, M D.** ... 30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Farming for Boys*.....1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-growing** 90
12 | Gardening for Pleasure, Henderson*.....1 35
12 | Gardening for Profit**.....1 35
8 | Gardening for Young and Old, Harris**.....1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants 20

This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse construction, by Prof. Taft**.....1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay**.....1 35
5 | Garden and Farm Topics, Henderson**..... 60
| Gray's School and Field Book of Botany.....1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*..... 20
5 | Gregory on Onions, paper*..... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05
10 | Household Conveniences.....1 40
2 | How to Propagate and Grow Fruit, Green*..... 15
10 | How to Get Well and Keep Well..... 90

An exposition of the Salisbury system of curing disease by the "lean-meat diet."

2 | Injurious Insects, Cook..... 10
10 | Irrigation for the Farm, Garden, and Orchard*1 10

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7 | Market-gardening and Farm Notes..... 75

This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

3 | Maple Sugar and the Sugar-bush**..... 32
4 | Peabody's Webster's Dictionary..... 10

Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers..... 30
6 | The same in cloth covers..... 65
3 | Onions for Profit**..... 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

| Our Farming, by T. B. Terry**..... 1 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.

We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

1 | Poultry for Pleasure and Profit.**..... 10
8 | Practical Floriculture, Henderson.* 1 10
10 | Profits in Poultry.* 75
2 | Practical Turkey-raising 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character.** 15
1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
10 | Success in Market-Gardening* 90
10 | Talks on Manures* 1 35
7 | Ten Acres Enough 75
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases..... 10
5 | Tile Drainage, by W. I. Chamberlain 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.

3 | Tomato Culture 35
3 | Vegetables under Glass, by H. A. Dreer**..... 20
3 | Vegetables in the Open Air..... 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**.. 47
8 | What to Do and How to be Happy While doing It, by A. I. Root 42

The A. I. Root Co., Medina, O.

Digitized by Google

Advertisers' Department of Short Write-ups.

A GOOD POTATO-PLANTER.

The Improved-Robbins Plants 100 Per Cent of the Seed.

The Improved-Robbins potato-planter will open a loose furrow, mix the fertilizer (when used) thoroughly with the soil, drop the seed any desired distance—12, 14, 15½, 17, 18½, or 20 inches apart—cover with discs as much or as little soil as desired. Drops 100 per cent of the seed correctly—making no misses or doubles. The makers of this planter guarantee it to do satisfactory work upon a fair and impartial trial.

Every farmer who is thinking of purchasing a potato-planter should look thoroughly into the merits of this machine. A copy of the handsome "Iron Age" catalog, describing forty great labor-saving farm and garden implements, will be sent free; also a copy of a special catalog describing the planter mentioned above. Bateman Mfg. Co., Box 120, Grenloch, N. J.

The Prairie State Incubator Company.

The Prairie State incubator that is so well known throughout the U. S., is a machine used exclusively on the largest poultry and duck farms in the world. On these farms from 40 to 60 300-egg machines are used to hatch out thousands of chickens and ducks throughout the season. After a careful test on the U. S. Agricultural Experimental Farm, at Washington, the Prairie State incubators and brooders were adopted, and now used exclusively there. In addition to these two recommendations, the machines have been awarded 3 7 first premiums all over the United States and Canada. Our machines have also been put on exhibition in foreign countries, and have been awarded the highest honors in the way of gold medals, diplomas, etc. Prairie State Incubator Co., Homer City, Pa.

Kerosene Emulsion in Spraying.

The value of kerosene as a material for spraying has been generally appreciated by horticulturists and others for some time, but the difficulty and uncertainty of preparing and using the various emulsions of kerosene has prevented its general use. With an eye singly fixed on its value we set to work experimenting for a machine that would make its own emulsion while in the act of spraying. The result is the "Weed" Knapsack Kerosene-sprayer, the "Success" Bucket Kerosene-sprayer, and the "Peerless" Barrel Kerosene-sprayer. The great success of these machines is due to the fact that the force applied in pumping injects just the amount of kerosene desired into the spray in such a manner as to make a perfect emulsion. The amount of kerosene is easily regulated by an indicator on the top of the kerosene tank which controls the percentage of oil. Our illustrated catalog and price list containing complete formulas for spraying, in addition to description of their very complete line of pumps and nozzles, sent on application. The Deming Co., Salem, Ohio.

The Inter-State Manufacturing Co., of Hudson, St. Croix Co., Wis., is steadily growing into one of the permanent institutions of Hudson, and promises, with ordinary good fortune, to be a plant of no mean proportions

As is well known, the company bought the old chair factory outfit a year or two ago, and thoroughly overhauled it for adaptation to the new line of work. This is primarily the manufacture of bee-hives and supplies, and incidentally the making of boxes and crates, and doing general job work in wood-working lines.—The Hudson *Star-Times, Hudson, Wis.*

We often wonder if the general public properly appreciate the privilege of doing business with the pioneers and originators of an industry. Undoubtedly nobody else has so many advantages in the way of knowledge of the business, requirements of the trade, actual needs of the people, best and most economic methods of manufacture, etc., as the active and observing pioneer in any line of manufacture.

We know that this is true at least in the manufacture of green-bone cutters. The Mann green-bone cutter was the original perfected machine of its kind, and remains to-day the leader among such machines. We have the largest factory in the world devoted exclusively to the manufacture of green bone cutters, and are selling more machines than all other manufacturers combined. F. W. Mann Co., Box 37, Milford, Mass.

A POSTAL CARD WILL

Bring to you a copy of our richly illustrated catalog, "HEN TALK," which tells all about Housing and Feeding Poultry, the Best Breeds, Capons and Caponizing, Brood Coops, Exhibiting, Diseases, Best Methods, etc., and will

Tell You Where to Buy

America's best Buff, Barred, and White Plymouth Rocks, Light Brahmas, and Buff Cochins. We pay the express charges on stock and eggs. We also carry an up-to-date line of

Poultry Supplies at Cut Prices.

48-inch "Climax" No 2 mesh poultry-netting for $2.45 per bale of 150 running feet, or 5-bale lots at $2.25; other widths in proportion. Drinking-fountains at 15c each. Egg-testers at 65c, with lamp complete. Cut clover hay, $2.15 per 100 lbs. P. D. Q., 5 lbs. for $1.00. Oyster-shells, $1.25 per 100 lbs. Sea shells, $2.25 per bbl. Broken crackers, $1 40 per bbl., and a hundred and one other articles on which we, with one or two exceptions, pay the freight charges.

Highland Poultry Farm,

P. O. Box 44, - - Blue Ash, Ohio.

In writing, mention Gleanings.

FOR SALE.

In Cincinnati, Ohio, the honey and bee-keepers' supply business established and formerly owned by the late Chas. F. Muth & Son. Will sell cheap. Call on or address

Mrs. Anna Muth, 2146 Central Ave., Cincinnati, O.

FINE ITALIAN QUEENS at 50 cts. as they come, or 75 cts. selected, or $1 00 the very best. All reared in 1898 from imported mothers. Or 200 nuclei, one-frame, queen included, at $1.25. We shall dequeen 400 colonies in April, hence these low prices. Nuclei are strong and full of brood. Satisfaction guaranteed.

G. F. Davidson & Son, Fairview, Texas.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS AS AN ADVERTISING MEDIUM.

I must say your journal is the thing to advertise in. I had answers without end, consequently I sold the dogs. I shall come again when I have any thing for sale or exchange. ROBT. GOLLING.

Lenoir City, Tenn., Feb. 10.

I still desire to assure you that no periodical is so welcome and appreciated in my house as GLEANINGS. Please continue to send it to me as usual.

J. F. MUNDAY.

Woodville, N. S. Wales, Australia. Nov. 4.

THE INNER LIFE OF PROMINENT BEE-KEEPERS.

I should like to have you give us little insights into the private life of such men as Mr. Doolittle and Dr. Miller. I think most of your readers would not object to knowing something of the home life of our great teachers, and hope you will continue to favor us with such pictures and sketches. When we learn to love a man because he is good and useful, we can not find out too much of the good side of his life.

Roxobel, N. C., Dec. 24. GEO. H. BARNES.

Digitized by Google

Vol. XXVII. APRIL 15, 1899. No. 8.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA · OHIO ·

MURRAY-HEISS CLEVELAND O

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, SECOND-CLASS MATTER.

Digitized by Google

This Double Buggy Harness, $20, as good as sells for $30.

WE HAVE NO AGENTS, but have sold to the user direct at factory prices for the past twenty-six years. We ship anywhere for examination. **Everything Fully Warranted.** We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively. Our line consists of Rockaways, Surreys, Traps, Phaetons, Stanhopes, Driving Wagons, Top Buggies, Open and Top Road Wagons, Spring Wagons, Delivery Wagons, Milk Wagons, Wagonettes and **all styles of Harness.**

Send for Large Free Catalogue.

ELKHART

Carriage and Harness Manfg. Co.,

W. B. PRATT, Secy. **ELKHART, INDIANA.**

This Extension-Top Surrey with double fenders, complete with side curtains, aprons, lamps, and pole or shafts, for $72.

Just as good as retails for $110.

SPRAYING with our new patent **Kerosene Sprayers** is simple indeed. Kerosene emulsion made while pumping. 12 varieties sprayers, Bordeaux and Vermorel Nozzles, the "World's Best."

THE DEMING CO., SALEM, O.

Western Agents, Hennion & Hubbell, Chicago. Catalogue and formulas free.

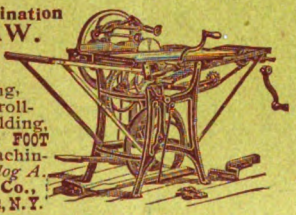
In writing, mention GLEANINGS.

Barnes' Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. *Machines on trial.* Send for illustrated catalogue and prices.

W. F. & John Barnes Co.,
545 Ruby St.,
Rockford, - - Ill.

Union Combination SAW.

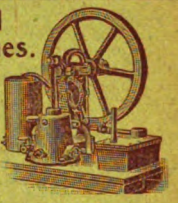


For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT** and **HAND POWER** machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St, Seneca Falls, N. Y.

In writing to advertisers, mention Gleanings.

Pierce FARM Engines.



3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
BOX 17. Racine, Wis.

To make money at farming it is necessary to use the best labor-saving and time-saving implements. The cost of cultivation is brought down to the lowest notch with the **Iron Age Pivot Wheel Cultivator.** The work of cultivation is done quickest and easiest. The wheels, guided by the feet, carry the gangs of teeth to right or left, as desired. Pivots have hardened steel ball-bearings. Gangs can be reduced to three or even two teeth. Equipped with one pair plows, shields and fallow tooth attachment. Does excellent work, even on hillsides or among very crooked or irregular rows.

BATEMAN MFG. CO. Box 120, Grenloch, N. J.

Iron Age Farms

The Iron Age Book of farm and garden implements for 1899 sent free.

No Money in Advance!

$15.50 HIGH GRADE BICYCLES.

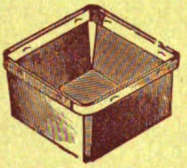
Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men Women, Boys and Girls, well made and durable.

$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made. Others at $10, $13.50, $15.50, $17.50 & $19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

Fruit Packages of All Kinds.

—ALSO—



BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - Erie Co., Ohio.

In writing advertisers mention Gleanings.

Digitized by Google

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

VOL. XXVII. APR. 15, 1899. No. 8.

STRAY STRAWS FROM DR C. C. MILLER

THE FAULTLESS SPRAYER is just the thing in a window of house-plants — wouldn't do without one for $5.00.

NOW'S A GOOD TIME to remember that there's no better place to keep combs on which bees have died than under strong colonies, putting a whole story of them under.

"IN THIS LOCALITY," as soon as a colony is conscious of its queenlessness all that's necessary is to take two frames of brood with adhering bees, and a sealed queen-cell, and enough bees will stay put for a good nucleus.

"A COLONY can usually be crowded into one story late in the fall or about the time the bees are put in the cellar," says the editor, p. 271. You may make that even stronger, and say always. Even if they should hang out at first, no harm.

IN TRANSFERRING from one movable-frame hive to another, the editor says he would both drive and lift out old frames. Must be some mistake. You'd hardly drive if you could lift out the frames, would you? [You are right. I must have had somehow in my mind the old box hive when I spoke about "driving."—ED.]

I ALWAYS SUPPOSED that I got excellent queens by doing as W. W. Somerford directs, p. 260, but some insist that Mr. Somerford will have to destroy those cells and give other brood to the colony if he wants good queens. Friend Somerford, have you ever reared many queens that way? and if so, will you tell us their character?

IN ANSWER to a question, p. 254, most certainly introducing a young queen in place of an older one, before harvest, lessens the chance of swarming; and, more than that, if the young queen is not introduced *but reared* in the hive, there is no danger of swarming. Why a queen reared in the hive is better to prevent swarming than one of the same age introduced, I don't know.

WHAT DOES H. Segelken mean by tall wide sections, which he speaks of twice, p. 263? He prefers sections with a width of 3⅝ and 4 inches. Does he call them *wide?* [I suspect that, when Mr. Segelken spoke of "tall and wide" he simply meant tall sections, from the fact that he directly favors *all* tall sections, no matter what their width.—ED.]

"FUNCTIONALLY the worker-bee is not capable of reproducing its kind"—hold on, though; what about a laying worker? If he lays eggs, and his eggs produce perfect drones, is he to have no credit for his work? But if you're willing to call it *it*, it will be all right. [But is it not still true that a worker bee can not produce its own kind? However, I am willing to call it *it*.—ED.]

STENOG doesn't know what Mr. Day went west for, when Mr. Secor says:

> May the strength which I gather while Day's in the West.

Day was trying to get away from the two damsels that were after him; Evening and Twilight, for we are told, "Now came still Evening on, and Twilight." [You are right. —ED.]

W. W. SOMERFORD, p. 261, speaks of making nuclei of brood and bees that have been ten days queenless; and unless the bees are fastened in, "nine-tenths of the bees return to the old hive." In this locality not many such queenless bees would return to the old locality, if not fastened in at all. [I suspect you are right, and yet at the same time Doolittle may have a bone to pick with you on the point.—ED.]

A. E. MANUM reports in *A. B. K.* that in 1886 he fed to 727 colonies $2100 worth of sugar. If sugar was 5 cts. a pound, and 5 pounds of sugar made 7 pounds of syrup, that made 80 pounds of syrup per colony. Seems there must be an extra cipher in that $2100, but it's so given in two places. [Something wrong somewhere. Even if we take off a cipher, then each individual colony would have got only a scant feed.—ED.]

WHILE BEES BURIED in the snow may do nicely, as mentioned by I. S. Tilt, p. 274, it should not be forgotten that others, I think

Digitized by Google

G. M. Doolittle among the number, have reported heavy loss when bees were deeply buried a long time. [But the reports for the past few years seem to indicate that, as a general rule, snow over the entrances does very little harm; in fact, it seems to be an advantage. In Doolittle's locality the snow might be so very deep around the hives as to be too much of a good thing.—ED.]

DZIERZON thinks the queen does not decide the sex of an egg after she thrusts her abdomen in the cell, as by that time he thinks the egg has passed the point where it is fertilized. He inclines to the belief that the sex is decided at the time the queen puts her head in the cell. [We can speculate a good deal on the precise time when the queen decides to lay a worker or a drone egg; but we shall never be able to prove it, methinks. Even if Dr. Dzierzon were right, I do not see how he could prove the theory.—ED.]

A NEW KINK that of Chas. Dadant, p. 258, that queens drop eggs as they ripen, and so lay as many in a small hive as a large one. May keep right on for a little while when changed from a full colony to a nucleus, but won't they slack up in a day or so? But I don't see that that makes any difference, and I don't see that that overworking and dying theory counts for any thing. Unless I'm entirely mistaken, the rule is that all queens in strong colonies are superseded, and that supersedure usually takes place toward the close of harvest, when it causes no loss, so it's just as well if a queen doesn't last more than a year.

J. H. MARTIN suggests coffin-handles for hives, p. 256. Don't you know, Bro. Martin, those things are not strong enough for use generally, but only for show? I've taken your advice, refusing "that pugnose affair," and have ordered a hundred hives with substantial cleats clear across. But say, Rambler, what makes you keep harping on handholes that really advanced bee-keepers are finding out are not sufficient? [Handholes are all right; and the handhole in connection with the so-called "pugnose affair" is better than cleats alone. Didn't we so decide, doctor, when we were in your apiary last fall, talking about this same matter?—ED.]

YOU MISSED the first part of my question about that Michigan law, Mr. Editor, p. 254. On the face of it, the law can easily be interpreted that the governor shall not make any appointment until the bee-keepers recommend him to make an appointment, and then he may appoint a man of his own selection that the bee-keepers don't want. Very likely the intention was that the governor should appoint an inspector, and that the appointee must be a man recommended by the bee-keepers. Why not say so? [While the law might have been worded a little better technically, I hardly think the governor would make a choice that would not be in entire harmony with the wishes of the bee-keepers. If such a law were in force, and the bee-keepers as a body were to make a request for the appointment of a certain person, the governor would be, on political grounds if nothing more, very glad to appoint that very person. If the bill could be changed without interfering with its passage, by all means change it. But if there is the least chance that the effort to change would hinder or block its passage, then I would leave it as it is. As to section 3, part of the inspector's duties are enumerated in section 2.—ED.]

IF APIS DORSATA is "incapable of being hived," and yet thrives and multiplies to such an extent as to use a large part of the nectar that should go into our hives, can't you "see even then that they can do any harm"? But I've no fear of their living "in this locality." [If *Apis dorsata* were very numerous in their own habitat, there might be grounds to fear that, when they once get into this country, they might run out other bees as the English sparrows have been said to run out some of our song birds. The facts are that *Apis dorsata* do not interfere with other East India bees in India any more than bumble-bees interfere with *Apis mellifica* in this country. The climate of the United States, even in Florida, would be too severe for the bees at times, if domiciled in the open air. One frost, I imagine, would kill them.—ED.]

"Don't talk to me," says surly Drone,
"About your 'April showers;'
This sleet and drip give me the grip,
And that my temper sours."

AMERICAN BEE JOURNAL.

I am glad Mr. York reads the *Inland Printer*. No wonder his paper looks well. That's where you'll see my effusions, Bro. York.

Prof. Cook lays stress on the importance of having empty combs on hand to secure a good crop when it does come. He predicts a big crop in 1900.

Mr. York discusses the question as to when a discussion should be cut off. When it ceases to discuss would be a good place to draw the line; that is, when no more juice can be squeezed out of the lemon, throw it away.

As to the number of people making hives, I believe it was five times larger fourteen years ago than now. We used to describe the catalogs of such, and I know the supply was constant. In one issue I wrote up about sixty.

"Afterthought," in the issue for Mar. 30, is the distinctive feature. In one item the writer is severe regarding a proposed trial of how much a man can eat in a certain time. It is claimed that a certain man can eat a pound and a half of honey in a minute and a half. Isn't that a perversion of one's powers?

Digitized by Google

Prof. Cook paints a sorry picture of the California prospects for 1899; but the late rainfall has spoiled his article, much to his delight, probably. A slight change of Cowper fits the case:

> Ye fearful saints, fresh courage take;
> The sky that long was red
> Is dark with rain clouds that now burst
> In fatness overhead.

The Illinois foul-brood bill will probably become a law, as it was reported to the Senate with the recommendation that it pass. It seems strange that so reasonable a measure as that and others do not emanate from our lawmakers themselves. Why should they be urged in such a matter, while others of a doubtful and even evil character are sometimes granted at once?

T. F. BINGHAM, of smoker fame, is an advocate of wide and deep entrances, summer and winter. He writes that his bees have wintered nicely, notwithstanding his entrances are 12×⅞ high the year round. Wide entrances are rapidly working their way into favor, because it becomes evident that many of the veterans have been using such entrances for years — long before we began to advocate them.

"Alright" is referred to as being possibly a new word. That's alwrong. Poor spellers often use it, supposing it follows the analogy of *already*. It is an eyesore to have such things thrust before us. But it is no worse than *sometime* as a word; as, "He was here *sometime* ago." *Sometimes* (an adverb) is always one word; but *some time* is an adjective and a noun. *Sometime* is obsolete. It used to mean *former* or *formerly;* as, "Monroe was *sometime* (once) president of this country." Also *someone*, *noone*, and *anyone*, in place of *somebody*, *nobody*, and *anybody*, are gross blunders. If used they should be separate words.

Mr. Secor says there is $275 in sight for the Langstroth fund. That's a small sum indeed for that purpose. If the papers of Dayton could be informed of the great benefit conferred on the world by Mr. Langstroth, I believe they would gladly help swell the present sum to ten times what it now is. Mr. Secor is the man to broach the subject. People build finer monuments in honor of the dead a century after the death occurs than the cotemporary generation would erect. Boston has a superb monument, I am told, in memory of Wm. Lloyd Garrison, but he was mobbed there in 1835, as a kind o' starter, I suppose. It takes time to measure a man.

> Ten cities strove for Homer dead,
> Through which the living Homer begged his bread.

THE BUSY BEE.

Concerning wintering, Mr. Abbott says he had another chance to test his pet theory, "plenty of food in the right place," this winter. He started a colony into the winter with no honey, but with a large sugar cake directly over the cluster, and when they last reported a few days ago, they were in fine condition. He lost only one colony, and they starved from pure neglect. His bees are on the summer stand, with no protection, and he is now thoroughly convinced that a cluster of bees with full honey-sacs will not freeze.

In regard to amalgamation, the editor says that General Manager Newman, of the National, in a letter to General Manager Secor, of the U. S. Association, makes such demands as a condition of the union as are never likely to be assented to by the General Manager and directors of the United States Bee-keepers' Association, and there the matter rests. Mr. Abbott says that, as a director of the last-named society, the union will never take place by his consent on the conditions set forth by General Manager Newman.

AMERICAN BEE-KEEPER.

Henry Alley seems to be down on new things, and on some things that are not so new. He says, "Down with a hive, a smoker, a section-case, and all other clap-trap fixtures. Give me things most convenient and inexpensive. Scientific bee-keeping in any branch of apiculture is a nuisance." Bro. Alley seems to want "liberty or death," but prefers the former.

Mr. Doolittle says a wooden paddle about 5×7 inches is the thing to kill cross bees that follow one around the yard. He once tried a paddle made of fine wire cloth stretched over a wooden frame, something like a sieve. But he says he can hit a bee just as well with the solid paddle as with one that allows the air to pass through. The latter sometimes only stuns the bee, while the solid one always kills it.

A correspondent asks Mr. Hill how a glass hive would work. The reply is, "Glass, being a conductor of heat and a non-absorbent of moisture, it would seem it is not so well adapted to the requirements of bees in winter as would be a hive of wood, the character of which is, in these important respects, directly opposite. We have, however, for a number of years, successfully wintered a colony of bees in a glass hive, in a warm room."

An interesting letter from Chili, by the editor of the *Chilian Bee Journal*, is given, together with a picture of the writer, Mr. Lafitte himself, and two Chilian apiaries. His journal comes here, and I have noticed with much pleasure the excellent and progressive qualities of it in every respect. He says the general aspect and climate of Chili are especially adapted to bee-keeping. Some of the farms cover 40,000 and some 80,000 acres, and some are thirty or forty times as large as that. There is an enormous consumption of wax there for tapers in the Roman churches. One of the largest apiaries consists of 700 frame hives, 400 of which are

Digitized by Google

of the Dadant-Blatt system, and about 300 of the Langstroth-Simplicity style. These 700 hives are divided into five apiaries about two miles apart. So far as harvests are concerned, 110 lbs. per hive is the most that has been extracted. This was an apiary of 100 Dadant-Quinby hives. Deep frames are inconvenient in a climate like that of Chili.

L'APICULTEUR.

In our highly esteemed French cotemporary, *L'Apiculteur*, Mr. C. M. Weber comes out vigorously against the practice of clipping the wings of queens as taught by E. R. Root. He says, "This mutilation is contrary to nature. . . . Let the Yankees find their profit in these stubby clipped wings; but as for me, I prefer to let my queens remain winged, just as God created them in order that they might be fertilized." But after they are fertilized, what need have they of wings? If they serve man's purpose better when clipped, is it not his right to clip them? Mr. Weber's logic would keep him from clipping lambs' tails; but the lamb is happier without the tail, even if God did give him one to start life with. Again, if Mr. Weber is right it would be wrong to dehorn cattle; but if cattle are more useful to man when they are dehorned, surely it can be no more displeasing to God than it would be to cut down a hill to make a railroad, or to cut our hair and finger-nails to improve our appearance and enhance our comfort. If clipping is condemned it must be done on other grounds; and in practice Mr. Weber's "other grounds" for not clipping are found to be of no weight.

GENERAL CORRESPONDENCE

CUBA.

Not a Land Flowing with Milk and Honey; Some of the Drawbacks; Fleas; Price of Honey; Cost of Living, etc.

BY AN AMERICAN TRAMP.

Gentlemen:—In your letter of the 7th you ask me to send you a few lines about bee-keeping in Cuba as I find it. This I will do, hoping it may be the means of saving some money to my brother bee-keepers who come here, and more to those who stay away. I have just returned from a short trip through the country, and there is no doubt about Cuba being a fair "honey country." Extra large yields like some they have in California and some we had in Florida are not known here. The honey crop here will generally pay a bee-keeper fair wages; but I find in collecting data that some years are bad here too, so that, in an apiary of 375 hives in the hands of an expert bee-keeper, the crop did not pay him $300 for his year's work. I have seen but one location so far where I should care to risk over 300 hives in one place. Along the good roads here one can find an apiary every few miles, and more springing up every day. This, in connection with the farming population going back to work cultivating the fields, thus destroying the aguinaldo, which is the main stay of the honey crop, is going to reduce materially the honey-yield yearly.

The surplus honey-flow is from November till the first of March—some years longer and some years shorter. Most of the honey here is sold in Havana and shipped to Europe in barrels of 90 gallons. The cost of hauling these barrels on the best of roads a distance of eight miles is $2 00 each. One apiary on a railroad pays $2.35 per barrel a distance of about forty miles, and pays 80 cents freight for empty barrels the same distance. On this railroad they charge 13 cents per mile on a third-class passenger ticket. What a first-class ticket was I was afraid to ask. It costs a good deal to get around in Cuba.

The price of honey this year here is higher than it generally is. The present price is 48 cents per gallon. This is because so many apiaries were destroyed during the war. Some years the price has been as low as 24 cents per gallon. In one apiary I visited, the ground between the hives was just carpeted with dead bees, so thick you could not see the ground. The owner did not know what caused it. It was not from robbing or fighting, as it was all over the apiary. Can it be from some poisonous bloom? Can any reader tell? I looked into the hives, but found the bees in the hives in good condition. From what I have been informed by several bee-keepers there is considerable foul brood on the island; but from what I have seen, bees seem to thrive in almost any condition here.

You will probably get plenty of matter on the bright side of bee-keeping, so I will give the offset to it. A single man coming here to work in an apiary need not look for big wages. The wages paid bee-keepers is from $15 to $25 per month, and board. A man with a family intending to come to live here had better come alone first and see for himself. In the country there are no houses, almost all having been burned by the insurgents, and very few women from their homes in the United States would content themselves to live in these Cuban towns or cities, they being very filthy and dirty; besides, the houses are just alive with fleas. I have had to wash myself with kerosene oil on going to bed, so as to get some rest; otherwise the island is quite free from insects, the fleas being the worst.

The cost of living is also very high, but it is becoming cheaper daily. Flour is $8 00 per barrel; beef, 30 cents per pound, and all other things in proportion. But kerosene oil caps the climax, selling at retail all the way from 50 cents to $1.00 per gallon, and this in a country where you have to burn alcohol, oil, or charcoal (there being no wood), is quite an item. Why! sixty cents' worth of postage-stamps would cost a dollar here. The only things I have come across here that are cheap are cigars and alcoholic beverages. Just think of it, friend A. I. R.—good cigars two and

Digitized by Google

three cents each, and cognac and gin two and three cents a glass. You don't know how much I regret that I have no use for either. I have half a notion to learn to use both so as to take advantage of the only cheap thing in the country.

The last day of my trip I came across a man who has two gums of the stingless bees; but I had no time to investigate them. I promised him that, when I got time, I would go and transfer them into a frame hive. He said if I did he would give me one of the gums of bees, so I shall get a chance to see what they will do.

This is all for the present, from the Cuban-American TRAMP.

[I have concluded not to go to Cuba just yet If I must bathe myself in coal oil at $1.00 per gallon to keep off fleas I'll stay at home a while longer. Seriously, one should think twice before going to this land devastated by the hand of war. Conditions will improve, no doubt, in the near future. In the mean time the average bee-keeper better keep his good dollars and invest them at home.—ED]

SHALL WE EXTRACT BY HEAT OR MACHINERY?

A Hard Hit at Orthodoxy in Bee-keeping; a few Facts and Figures on the Question Whether it is More Profitable to Run for Wax and Honey than for Honey Alone.

BY W. A. H. GILSTRAP.

It is an almost painful fact that few things get so well settled that they remain so; and one man can knock figures down faster than fifty more able bodied men can set them up. Below I propose to indulge in a little innocent calculating, which can easily be disproven by any one having a small experience or much theory. As this article is only suggestive it would be more profitable to hear from the former class.

Mr. Ridgepole man was condemned because he proposed at the Albany convention to run bees to wax more and honey less. That very thing has been done successfully for years by the Wolfe family, or families, rather, in San Joaquin Co., Cal. Mr. Milo Wolfe says he can support his family from 200 colonies of bees without selling a pound of honey. Of course, he would have to "feed back" to get the largest amount of wax. One year his father, Mr. Jacob Wolfe, obtained over a ton of wax from one apiary.

Perhaps you think they use a great deal of foundation. They have the bees start comb from V-top bars without a starter for either story. They have as good bees as you are likely to see in this country; have tried extractors, and now prefer melting their honey in solar extractors. Much of their honey is quite dark, but the wax is all right. Let's suppose the case. Suppose I extract the honey from 400 colonies in the "orthodox" way.

400 colonies at 100 lbs. honey each, 40,000 lbs., at 2½c	$1000 00	
Wax at 1 per cent weight compared with the honey, 400 lbs., at 23c		92 00
Total,		$1092 00
Cans and cases	$200 00	
Sacks for wax, probably	10	
Net,		$ 891 90

Or suppose I melt the honey in solar extractors.

400 colonies at 50 lbs. honey each, 20,000 lbs., at 2½c	$500 00	
Wax at 5 per cent weight compared with the honey, 1000 lbs. at 23c		230 00
Total,		$730 00
Cans and cases	$100 00	
Sacks for wax, probably	25	
Net,		$629 75
In favor of machine extracting		262 15

This, however, is not the real difference. Other factors must be considered. Melting takes less time, a cheaper hive, and less hauling, which is quite an item in some places. It also means more swarms if the extractor man lives up to his privilege. If the flow is very long I know it is an advantage to extract once, sometimes twice, from the brood-chamber early in the flow. If the honey comes in very late in the season, cool weather is sure to interfere with comb-building, somewhat to the detriment of the melting plan. On some ranges the amount of honey obtained by melting is not far below the output from extracting, which would give altogether a different result from that figured above.

In Jan. 15th issue, 1898, page 50, Mr. J. H. Martin says the San Francisco papers quoted the dark river honey of which I speak at 1¾ cents per pound. Of course, that is the lowest price on record; but as we are likely to have more of that price in the future, let us figure on that price from the above basis.

Extracting:

400 colonies at 100 lbs. honey each, 40,000 lbs., at 1¾c	$700 00	
400 lbs. wax at 23		92 00
Total,		$792 00
Packages for honey and wax	200 10	
Net,		$591 90

Melting:

400 colonies at 50 lbs. honey each (75 lbs. might be nearer correct), at 1¾c	$350 00	
1000 lbs. wax at 23c		230 00
Total,		$580 00
Packages for honey and wax	100 25	
Net,		$479 75
Apparent difference in favor of extracting		112 15

As the cost of labor, marketing, comb-building, cost of packages, etc., are not identical in

Digitized by Google

any two places where the bees and hives and other implements vary, each apiarist will have to consider his surroundings, and perhaps find the relative advantages of the two methods by experience.

Crows Landing, Cal., Nov. 30, 1898.

[When Mr. Aikin's article was read at the Buffalo convention I remember it raised a regular hubbub of protests. Such a doc rine as discarding the extractor, and cutting out the combs and putting them in wax-extractors, was too much for the bee-keepers present to indorse. Notwithstanding I would not go so far as to say there may not be something in it, for, as friend G. shows, a good deal depends upon conditions and circumstances. If honey should continue to go down, and wax go up, it might be well to pay more attention to the latter. In Cuba, I believe, wax is one of the important products from the hive.—Ed.]

SOME NOTES ON MARCH FIRST GLEANINGS.

A Valuable Article from an Old Correspondent.

BY J. A. GREEN.

THE AVERSION OF BEES TO BLACK CLOTHING.

It is somewhat surprising to me to note the number of bee-keeepers who do not believe that bees have any dislike to black clothing. My own experience has thoroughly convinced me that they have. I have many times noticed the fierce attack upon a black felt hat. In one of the most marked instances I ever noticed, the hat was a new one. It was not dirty, nor were there any fuzzy protuberances. Some would say that, in this case, the smell of the dye was obnoxious to the bees. Be that as it may, I have known hats, so old that any smell of the dye must have disappeared, to be attacked when hats equally old and dirty, but lighter in color, were let alone. Bees are certainly much more disposed to attack an object that is woolly or fuzzy than one that is smooth; but if the material is black, that propensity is increased. Black clothing that is neither new nor dirty nor fuzzy is still objectionable to bees, as I have found to my sorrow.

Much of the time during summer I wear bicycle clothing — knickerbockers and long stockings. One would naturally suppose this to be an ideal dress for the bee-keeper, because there would never be any danger of bees crawling up inside of one's trousers. But I soon found that, if I wore dark-colored stockings, even if they were of perfectly smooth material, and it seemed to make no difference whether they were of wool or cotton; and, even though they were fresh from the laundry, the bees made my legs a special object of attack. Now when I go into the apiary in this rig I take good care to put on overalls.

TRAVEL-STAIN.

The subject is an interesting one to me, and I regret that the discussion comes at a time of the year when it would be impossible for me to make any experiments or even to secure a sample of travel-stained honey unless I may be able to find one in the groceries. That travel-stain may be sometimes, at least, caused by the incorporation of darker substances into the wax of the cappings, I can testify from my own experience. I once placed over a super in which the bees were at work in the sections a set of old combs that were in such bad condition that the bees gnawed them considerably in repairing and rebuilding them. The fragments of old dark wax sifted down into the super below, where many of them were picked up and incorporated into the capping of the sections that were being finished.

At another time I observed bees mixing with the cappings of the sections fragments of dark-colored wax brought up from the brood-chamber below. But in these cases, as in some others I have noticed, the character and extent of the additions were quite visible and unmistakable, and the result had very little resemblance to ordinary travel stain.

The additions of propolis which are often made in the fall, or during idle periods in the summer, are likewise quite different from what is ordinarily known as travel-stain.

Mr. Crane is unwilling to admit that bees are so untidy in their habits as to soil honey by walking over it. Unpleasant as the idea may be, it would be quite as bad to be obliged to believe that the dark color of the cappings was caused by the incorporation into them of the sweepings and scrapings of the hive. It would be strange indeed if the continual passing and repassing of thousands of bees, dusted with pollen and working with honey, beeswax, and propolis, should not leave their marks. Turn a lot of bees loose in a room where they will gather on a window in the endeavor to get out, and how long will it be before the glass will have lost its crystal clearness? For a more marked illustration, notice the entrance of a hive that has been robbed, or any place where bees stealing honey have crowded through a comparatively small opening, and see how soon the edges become coated with a sticky dirt. This is an extreme case of travel stain, but I believe it is in very much the same way that nearly all travel-stain is produced. Doubtless in most cases the coloring-material is pollen, and I should suppose that, in nearly all cases, it would be so incorporated with the rough surface of the capping that it would be impossible to wash it off.

OLD FOUNDATION.

I have often wondered how it could be that some of our writers have so persistently claimed that old foundation is just as readily accepted by the bees as fresh. I satisfied myself by thorough tests several years ago, and I have had the decision confirmed nearly every year since then, that bees show a decided preference for fresh foundation over what has been hung up in the air so long that it has become dry and hard. Try the experiment yourself. Devote at least half a dozen supers to it, placing them on as many different colonies. Fill each super half full of sections filled with foundation fresh from the box in which it came, or, better still, fresh from the mill. In

Digitized by Google

the other half use sections filled with foundation the season before. Place these supers on the hive at a time when the flow of honey is only moderate. Watch them closely as the bees begin work on them. If they do not show a decided preference for the fresh foundation, your experience will be entirely different from mine. I have never known it to fail, though when honey is coming in very freely, so that the bees go to work in the supers in a rush, the difference is not so noticeable.

Unless the foundation has been varnished with propolis, which sometimes ruins it entirely, the bees will always use it if honey is coming in freely; but during a moderate flow they sometimes show a very marked reluctance to using it

With a short honey-flow a little delay in getting started may mean a great difference in results; so I consider it very doubtful economy to use foundation that has been long exposed to the air.

DEEP CELLS.

Having combs built so thick that the queen will not lay in them, as referred to on pages 132 and 165, looks plausible; but my experience has shown that, while it is somewhat of a deterrent, it can not be relied on as a complete preventive. In my extracting-supers I use seven combs in the space occupied by eight brood-combs. Most of these combs were made by transferring, so that it often happens that a part of the cells in a comb are fully ⅞ of an inch deep. At any time when the bees are desirous of extending the brood-nest they will use such combs without any hesitation, cutting down the thick combs to a proper depth of cell. In fact, it has sometimes seemed to me that the bees preferred to use these extracting-combs for brood rather than the regular brood-combs. When a queen is allowed free range through several sets of combs tiered above one another she is apt to desert the lower range of combs entirely, and lay in the second and third story, even when the combs in these upper stories require considerable alteration to fit them for brood-rearing.

SOAKING COMBS

in a solution of carbolic acid in order to disinfect them after foul brood, was once tried by me with a considerable number of combs. I decided that it was both risky and unprofitable. It is a very difficult matter to get all the cells of a comb filled with water. If a single infected cell resists the entrance of the water, your work is all for nothing. After soaking them in the carbolic-acid solution they must be soaked in plenty of clear water to remove the smell. They must then be dried. After all this soaking and rinsing, the bees did not seem to like to use them, so I concluded that the best way to disinfect such combs was to melt them into wax.

SELLING HONEY BY THE SECTION

instead of by weight has been my usual method for several years. Most of the grocers accept this method very cheerfully, and, after experience with the plan, prefer it. Those who do not, generally like to buy by weight and sell by piece, because they are thereby enabled to squeeze out an extra profit. I use sections seven to the foot, with separators, of course, and they run very uniform in weight.

Ottawa, Ill., Mar. 23.

THE DOOLITTLE METHOD.

Some Good Hints; the Superiority of the Doolittle-reared Queens.

BY J. J. COSBY.

After reading Mr. Doolittle's "Method of Queen-rearing in a Nutshell," as given in the Jan. 15th issue of GLEANINGS, I thought that perhaps some testimonials from one of his followers might prove to be beneficial to some of the many beginners.

I purchased his book about seven years ago, and have been very successful in rearing queens of the highest quality. Since, Mr. Doolittle says, on page 47, "Then there is a bare possibility that the deeper Gallup frame has something to do with it, but I think not."

Well, I wish to clear of doubt the mind of the reader by saying his "think not" is correct. I use the Hoffman frame, with good results. I prepare my hive as he directs in GLEANINGS, except that I use one of my very best queens, especially as to markings of progeny, honey-gathering, prolificness, gentleness, etc. In short, this queen must be second to none in the yard, so far as I can judge.

I want this queen to be the mother of my drones; and while I am feeding to secure good queens I am also feeding the same colony to secure an abundance of the very best and finest drones. Oh such beauties!

Why do we bee keepers admire the beauties of the queen so much, and neglect the drone? But to return to the subject.

About April 5th to the 10th I put one or two combs of honey into this hive that was drone comb (after uncapping the cells), and about May 1st to 10th I put in one comb of sealed brood from hybrid colonies every two or three days until all ten-frames are full of brood (at this time the drone comb should be pretty well filled with drone brood, larvæ, and eggs).

Now, do not think that, because you have brood in all the frames, you are ready for the upper story. You should wait until enough bees hatch out to fill the brood-chamber crammed full; then you are ready to raise the two frames of larvæ and eggs, and put in their place two frames of sealed brood from your hybrids, and proceed as Mr. Doolittle has instructed, and I do not see how you can fail. It is not absolutely necessary to use hybrids to do the cell-building; you only get a greater per cent of the cell-cups accepted and completed by so doing.

Why are these queens better than queens reared from natural swarming? Because good queens are, as a rule, raised only in an abundance of bee-heat; and queens raised in this hotbed, as it were, of bee-heat, and kept there until just ready to hatch out, are bound to be

Digitized by Google

nearer Nature's way of rearing them than any other plan we know of.

"But," says one, "it will not pay me to raise queens."

Well, neither am I a queen-breeder. I have never advertised queens for sale. It pays me to raise my queens for the honey I get. How do I know this? By comparing my honey-records. My honey crop eight or ten years ago averaged from 25 to 50 lbs. per colony (and sometimes less). We will now take the record of the last three years; and to prove to you that last year was a poor year (allow me to digress a little), it was so poor that my neighbor, who had 23 colonies, got only 56 sections of honey, and another with 60 colonies got none whatever. Our bees worked on the same pasture, yet I secured an average of 72½ lbs. from 80 colonies, spring count, and increased to 100 colonies.

The year 1897 was a poor one. My average was 52 lbs. from 100 colonies, no increase. The year 1896 was good, my average being 122 lbs., all comb honey, from 54 colonies, spring count, and increased to 103.

My average, previous to 1896, was never over 50 lbs. per colony, and I do not know any cause for my increase of average except that of my queens being so much better. To get good average crops you must have all good queens. The queens are the propelling power of the apiary.

Evansville, Ind., Jan. 27.

GETAZ' METHOD OF PREVENTING INCREASE.

Dr. Miller's and the Editor's Objections Answered.

BY ADRIAN GETAZ.

Dear Friend Dr. Miller:—You and Ernest are giving it to me about that method of preventing increase, page 90. See Stray Straws, Feb. 15. The fact is, both you and Ernest strayed off the track, and failed to grasp all the circumstances of the case.

In the first place, note that the old queen is to be removed at once (I use queen-traps on all my hives, as I can not be always at the apiaries). This secures two points. One is, that there will be no more swarming until a young queen hatches, and during that time honey-gathering will go on as well as if there had been no swarming. The second is, that there is no more egg-laying until a new queen is ready to lay. We shall see presently what is the advantage of having no eggs laid.

About a week later one of the virgin queens emerges. Her first move is to try to destroy the other cells. Instinctively the bees defend the cells against her attack. The quarrel goes on for a day or two, when the bees (whether workers or queen or both I do not know) decide that such a state of affairs is getting to be a nuisance, and here goes the swarm. The queen-excluder, or a trap arranged as I described, prevents the queen from going out; and the result is, that the swarm returns at once. The next day brings a repetition of the program, but the swarm will remain out longer. This state of things will go on, the swarming bees remaining out each day for a longer time than the preceding, if the weather is good. What happens in the hive during that time? While the swarm is out, some of the young queens which so far have been retained in their cells by the bees will emerge, as there are not enough bees left in the hive to prevent them. The first thing they will do will be to engage in a fight that leaves only one alive. This, in turn, succeeds, during the absence of the swarm, in destroying the remaining cells, so in four or five days after the first virgin queen swarmed there will be only one queen left, no queen-cell, and, more than that, no unsealed brood to build any; and right there and then the colony goes to work in earnest, gathering surplus as actively as if no swarming had ever taken place; at least that has invariably been my experience, so there is a loss of only about four or five days, so far as gathering surplus is concerned.

You can now see where the importance is of removing the old queen at once; and that is the very point which you and Ernest have overlooked—or, rather, that I failed to explain sufficiently. If the old queen had remained, there would have been a daily swarming during a whole week before the emerging of the first virgin queen. Worse than that, eggs would have been laid during all that time, and perhaps during one or two weeks more; and as long as eggs would have been laid, queen-cells would have been built; and as long as queen cells and emerging queens had confronted each other, swarming would have grown from bad to worse, until, as Ernest puts it, the colony might just as well have been brimstoned so far as surplus is concerned.

The few days during which the colony is without eggs and unsealed brood is what cures the "swarming-fever," if there is any such thing, which I don't believe; but at any rate, after these few days there will be no attempt made at building queen-cells, even if a laying queen was introduced and had begun to lay at once. It seems that, during that time, the bees give up their notion of building queen-cells, and turn their attention to the next best thing, which, in such a case, is gathering honey. How many days, or, rather, how few days, without eggs and unsealed brood, it will take to cure the swarming-fever, I don't know. In a few cases, where I introduced laying queens, there were only four days, and that was sufficient. Whether four days would always be enough, or whether three days would do as well or not, I don't know.

It doesn't matter whether there is a virgin queen present or not. It is the absence of unsealed brood and eggs that effects the cure; and I suppose that a caged queen would not be an objection either, though I never tried it. It is hardly necessary to say that a loose queen and a caged queen together would not do.

Knoxville, Tenn., Feb. 21.

[Dr. Miller replies:]

In what I said about the matter, page 122, I had in mind only the trouble with swarms

Digitized by Google

after the old queen was out of the way. It is only fair to Mr. Getaz, however, to say that the old queen was left without any attention I think it was not a usual thing that the old queen was allowed to live till the first young queen emerged, and I doubt whether any trouble came from her laying. It is possible, however, that I may be mistaken on this last point. My impression is that the swarming after the first young queen emerged was kept up till the last young queen emerged; and when there was no longer a young queen in a cell it was a matter of not many hours to settle who should be rightful heir to the throne I don't believe I have just the same view as the editor about losing a crop by their sulking. As I said before, I could stand the sulking if that was all, and I think I *would* stand it. The trouble was, when a lot of swarms came out and kept getting more desperate every day there was a big demoralization, some colonies being so badly depleted that they were of little use for storing, while others were too crowded for the best work. Worse than that was the fact that sometimes a young queen got out through the excluder, and then away went one of those mammoth swarms. These troubles did not come because of the presence of old queens but of young ones. I haven't said the result would be the same with Mr. Getaz; and if he never has a swarm go off with a young queen, and if he never has swarms return to the wrong hives, then I congratulate him on practicing what I believe to be an excellent plan. If I had an apiary of 25 or less, and had excluders that would not fail in the hour of need, I'd very much like to try the plan again. Indeed, I believe if I had excluders that wouldn't fail me I'd like to try it anyhow. My plan was to put on excluders *before* there was any swarming, then let the bees do the rest, up to the time of letting out the young queen to mate. That suited me better than to wait for swarming and then remove the queen. C. C. MILLER.

Marengo, Ill.

[As Mr. Getaz now explains the method in detail it does not seem to be so objectionable as it did at first. In fact, I feel strongly inclined to give it a trial this coming season. If I understand the method it is simply this: At the approach of the honey season, or perhaps, rather, about the time swarming would naturally commence, the laying queens are removed. Alley drone-traps are then placed over the entrances of the hives thus unqueened. While cell building is going on, and the hives are queenless, there will be no attempt at swarming until some queen emerges from one of the cells; and even then probably swarming would not take place until the queen was strong enough to fly. As the virgins can not get out through the perforated zinc, it is a battle royal, resulting in the survival of the fittest. Four or five days are lost, probably, in the height of the honey season; and if the season is very short, as it is in many localities (only about ten days), the plan would be very objectionable; but if it lasts a month, four or five days would not cut much of a figure.

Although friend Getaz does not say so, it is assumed, of course, that, when the young queens reach the right age, and the swarming-season, or swarming-fever, is over, the drone-traps are to be removed to allow the queens to become fertilized.

There is this to be said in favor of the plan: It involves only the labor of catching the queen and putting on the drone trap. After that, the method works automatically almost through the season; but my oh my! there must be days when the air will be thick with swarms that have come out only to return. At our out-yard I feel morally certain there would be half a dozen farmers who would rush up here every few hours to inform us of the advent of swarms. Indeed, they would be so kind as to try to hive them.—ED.]

BEES AND COLORS.

Valuable Evidence Going to Show that Bees have a Decided Dislike for Black.

BY ELIAS FOX.

Friend Root:—I have carefully noticed the debate relative to bees being distinguishers of color. I should have written sooner, but have been sick all winter, and should have written years ago, but had no idea there was any difference of opinion on that subject. I have often wondered why there was not white material on the market for making bee-veils.

A number of years ago, when I kept my bees in the village, there was a passing team attacked by them—one a white and the other a dark bay with black mane and tail. He was killed by the enraged bees, which literally covered him and filled his nostrils, while the white one escaped with only a few stings.

I have noticed, too, when chickens were around the fronts of the hives, if there was a black or dark-colored one it would be attacked, when the light-colored ones would not be disturbed. As a rule I wear overalls or light-colored pants in the apiary, and it is a very rare thing to see a bee attack them; but let me open a hive when I have black pants on, and there will be from one to a dozen stings in them, almost before you can think. My wife often accompanies me to the apiary; and if there is a black ribbon or feather (smooth or otherwise) they will never fail to find it. I have always noticed, too, that, if I have no veil on, their attacks are either at the mustache, eyes, eyebrows, or right under the hat-rim; and if I get any stings about the hands, nine times out of ten it will be near or under the shady edge of the sleeve. I have many times had them so angry they would even fight the smoker, and the attack is always at the nozzle. I have even seen them strike dark spots and knots on boards; and many times, when empty hives are sitting near, I have seen them strike and restrike the auger-holes in front of the hives. Let two men go into an apiary, one wearing a black hat and the other a white one, and see if the black is not attacked first. If you have an idea there might be

Digitized by Google

a difference in the scent of the two, let them change hats and see if they don't still find the black one. I have kept bees for 17 years, and this has been my experience.

Hillsboro, Wis., Mar. 6.

[In view of the former evidence to the same effect, I do not believe that I was at all hasty in concluding that bees do dislike black objects. Mr. Martin (Rambler), in taking the opposite view, cites the fact that bees are more inclined to sting the white leg than the black pants. But this is not a matter of color. The leg itself has an odor that gives the bees a distinct knowledge of that part which is animate and that which is inanimate.—ED.]

TEMPERATURE OF BOILING HONEY.

225 and 235 F., according to the Specific Gravity of the Honey; the Difference between Spores and the Bacilli Themselves very Clearly Set Forth.

BY HARRY S. HOWE.

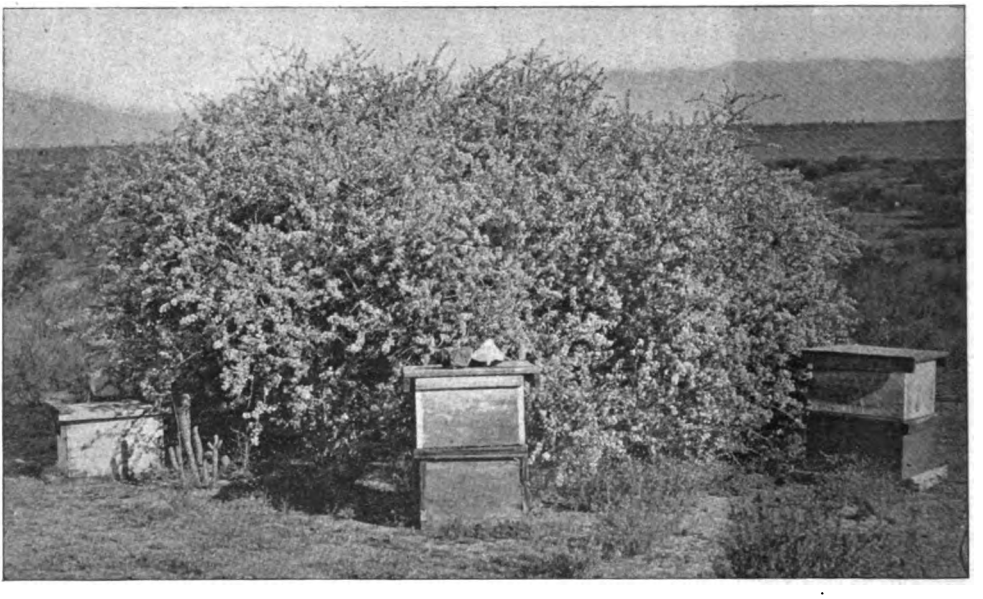
I have read with great interest the articles on foul brood which have appeared in the bee-journals this winter. I am putting in a year's work here at Cornell University in the attempt to work out some of those very problems.

When I read those notes on the temperature of boiling honey, the first thing I did was to hunt up some samples to represent the extremes of ripeness and body, and carry them up to the bacteriological laboratory. The samples were first placed in large test-tubes, and heated in a water-bath until the water boiled, which was at a temperature of 210¼° F.—about what was to be expected at this altitude. Even after considerable time the honey would not go above 209°. The tubes were then taken out of the water, and heated over a gas flame until the honey boiled vigorously, when the temperature of the best sample was 235°, and the thin one 225°. The thermometers used were standard ones, made and tested expressly for bacteriological work. Care was taken to see that the bulbs did not touch the sides of the test-tubes, and that the temperature reached nearly that of the boiling honey itself.

The experiments were repeated several times to make sure that no mistake had occurred. Each time samples from the same lot of honey reached the same point. A slight addition of water reduced this several degrees, showing that the boiling-point depended upon the specific gravity of the honey.

Prof. Hodge speaks of the three boilings, which are part of the routine work of a bacteriological laboratory in sterilizing culture media, and on that account advised the three boilings for honey. There is, however, a very important reason why this will not apply to foul-broody honey. The reason, as he states it, for the three boilings of culture media, is to kill the germs in the vegetative stage, having just time enough between the treatments for the spores to develop, but not long enough for them to form spores again. This is all right in a medium in which the spores will develop; but the spores of *Bacillus alvei* do not develop in honey, nor can the bacillus live in honey except in the spore stage. We might boil the honey as many times as we wish, and not kill the spores, if each boiling were just too short to kill them.

As to the time to do this, I am not yet sure. I have been working for some time on this point, without coming to any conclusion as to



CALIFORNIA LILAC.

Digitized by Google

the least possible time necessary to kill the spores. There seems to be a difference, depending on the age of the culture used, media employed, etc. Most text books on bacteriology advise boiling half an hour. At the boiling-point of honey it would take a shorter time. My experiments seem to show that 15 minutes is a safe time.

Dr. Miller speaks of gelatine being about the same specific gravity as honey, which would give about the same boiling-point. Gelatine, however, is used only for work at temperatures below body heat. It is not even used in the incubator. The thermal death-point of bacteria is usually worked out on bouillon.

As to microscopic determination of *Bacillus alvei*, it takes a long training in the study of the closely allied forms before one can make such a diagnosis. The only point of difference between this and several others is the size of the spores. Accurate work with a microscope that will admit of their being measured at all is one of the most delicate operations of microscopic work; while staining the spores is, to say the least, not the easiest thing in bacteriology.

It is quite easy to determine *Bacillus alvei* by cultural methods. One can not work satisfactorily without quite an expensive outfit besides the microscope. The microscopes in use in this laboratory are fitted with a 1/8 dry and a 1/12 oil immersion lens. We are required to use the 1/12 in making measurements, and in determining the morphological characters of the bacteria.

If one suspects foul brood, the best thing is to send a sample, securely sealed, to some one who has all the facilities for studying it. I am willing to undertake this work free of charge as long as I am where I can, for the sake of the practice.

Ithaca, N. Y.

[The experiment recorded above shows that the temperature I obtained, as mentioned on page 233, was very nearly right, for I secured a figure of 232, with honey about the same as the best sample Mr. Howe speaks of. Right in this connection it might be interesting to place here an extract from an article written by Prof. Henry W. Brice, a skilled microscopist, in the *British Bee Journal* for March 23. He says:

If a substance containing bacteria be boiled, all developed germs are destroyed; and if then left for twenty-four hours, and a suitable medium be present, the spores will germinate; then, on boiling again, these are in turn destroyed, and if left for a like period a further number will be found to exist. The process of boiling must, therefore, be again repeated, until the medium is perfectly free. *No boiling alone will destroy the spores while they remain in that condition.* This I have proved entirely to my own satisfaction.

From what has been given by Mr. Howe and by Prof. Brice especially, it would appear to me that, if no boiling alone will destroy the *spores* of foul brood, then how can 15 minutes' at 235 F be long enough? I should be inclined to believe that half an hour or a whole hour might still be insufficient. I am not yet ready to get over on Bro. Taylor's side of the fence. Even Mr. Cowan himself speaks of the great resistance of spores to acids and to high temperatures.

Suppose, for example, we boil some honey an hour, and the spores are not destroyed, and then feed this to the bees again. As soon as these same spores get into the organisms of the larvæ they would develop and produce the disease again. To my notion, then, and from the present light I have, I should not favor giving the bees honey from the foul-broody stock, even if it had been boiled an hour. The danger of extracting this honey, the danger of handling the combs at all, even if it is intended to melt them up, is so great that, in my humble opinion, it would be far safer to burn all such combs, brood and honey alike, and then bury the ashes. In any event the amount of wax and honey saved would be very small—too small to compensate for the great risk.—ED.]

CALIFORNIA LILAC, BUCKTHORN FAMILY.

Ceanothus Divaricatus.—See Cut.

BY J. H. MARTIN.

The California lilac is a compact bush that grows to a height of six or eight feet, and is very plentiful in the southern portion of the State. It commences to bloom in January and February near the coast, and as late as March and April in the interior. The blossom is very small, but borne in clusters two or three inches in length, and varies from pale blue to pure white. It is very profuse in bloom, and a symmetrical bush looks like an immense snowball. When the plain or mountain side is covered with these shrubs it presents a deep-green appearance, and a glory of misty blue or white during its bloom. It is not so fragrant as the domestic lilac of the East. The bees frequent its blossoms, and secure both pollen and honey. With alfilarilla first and lilac next, the bees get a good start in brood-rearing. During this dry season the alfilarilla has not put in an appearance to any extent, and the bees seem to be gleaning with more vigor from the lilac.

The photo gives a very good representation of the shrub, also of the average California bee-hive. In the foreground there is a new growth of wild buckwheat, and at the right a cactus rearing its bristly head.

REARING GOOD QUEENS.

Seasons of Rest Important; Rearing in Upper Stories.

BY HENRY ALLEY.

I sometimes think that the whole story of bees has been told; but with each issue of GLEANINGS there is still a good deal that is new and very interesting. I am especially interested in all articles relating to rearing queens, and such matters catch my eye readily. I can't say that there is much, even on this subject, that is very new; yet each writer has an idea that he has found a new way of

Digitized by Google

doing something his neighbors know nothing about.

In GLEANINGS for Jan. 1, p. 14, Mr. Bonney describes a way to rear giant queens. This statement reminds me of the discussion some years ago in the bee-papers in relation to rearing giant worker bees. The idea was to fill a hive with all drone-comb foundation, and thus compel the queen to deposit her eggs in drone-cells. I don't remember whether or not the experiment was tested, but I do remember an experiment I tried to force a colony of bees to rear some drones. I filled a hive with nearly all drone comb, and the queen was obliged to lay eggs in drone-cells. This experiment was watched with a good deal of interest; and when I found eggs in the drone-cells I thought my experiment was working first rate. In due time the cells were capped over, but not as drone brood is usually sealed in. When the bees hatched out of those cells they were no larger than bees reared in the natural worker-brood comb.

I wonder where Mr. Bonney would draw the line on size of the cell-cups. Can't he make the artificial cups as large as half a hen's egg, and rear queens in the same proportion? If Mr. B. reared extra large queens by that one experiment, the size of the queens was owing to some other cause than the mere fact that the cell-cups were larger that the natural size. I can not think that bees can be fooled by any such device. The best that mankind can expect to do is to keep up with nature. We can't expect to go ahead very much. I am aware that a good deal can be said on this point, therefore I drop the matter here.

Good queens can be reared by nearly all the methods given. In my queen-rearing experience I find there are times in the season, even in mid-summer, when bees are not disposed to rear first-class queens. Just after the honey-harvest in July is the worst time to rear queens. Bees at that time seem to think they should take a vacation. They need rest. Every thing should have a season of rest, and why not the bees? It is said that a railroad locomotive needs rest, so that the strained parts may settle back into position, and the strain on the machinery be relaxed for awhile. I do believe in rest for the bees. I have found that from the last of July to about the first of September is a good time for rearing the very best queens

I read what Mr. Doolittle had to say about the fine queens he reared above the brood-nest. I have found that one strong colony of bees will rear an unlimited number of queens from cell cups in any season. It is a good way to get queens. I reared but few queens by that method in 1898. If the method I tested last season works well another year, most likely no more queens will be reared in my apiary, above the brood-nest. Later on I intend to tell the bee-keeping public about this new idea.

In the production of honey the bee-keeper has got right down to nature's best methods. In producing queens we are away off. In getting large amounts of honey it is not necessary to give the bees an impression that they are about to starve. But in producing queens the bees *must* be made to understand that more queens are needed, and that the existence of the colony depends upon the number and kind they are expected to rear.

In rearing queens a necessity for a new queen must be made apparent. When bees are made queenless the colony soon understand the situation, and go about the business of supplying another queen. A colony in this latter condition, I claim, will produce a much better quality of queens than a colony that has a good fertile queen, except when the colony is about to cast a natural swarm. Of course, it is understood by all, that, when queens are being reared above a brood-nest that has a queen, and at a time when there is no field forage, the bees must be fed liberally. This same thing applies to rearing queens by queenless bees if good queens are to be reared.

Wenham, Mass.

SELLING COMB HONEY.

Why Some Colonies do Better than Others.

BY S. F. MILLER.

Mr. Editor:—In GLEANINGS for March 15 you give the foul-brood bill now before the Michigan legislature. I think we ought to have a law of that kind in every State. But they haven't quite enough of it. The most important part of it they haven't got; and that is, that every expert of a bee-keeper, or any crank of a bee-keeper who is foolish enough to manipulate his bees to death by tearing up the brood-nest and spreading the brood to such an extent as to chill it cool nights, and thus cause foul brood, is the one who ought to be arrested and fined and imprisoned, and made to go out of the business.

Well, Mr. Editor, I have not asked you any questions since you first went on the editorial staff; and now I am going to give you a hard question:

In one of my apiaries I had 9 colonies of bees last season, and 7 of them were of equal strength, and not one of them swarmed. They were very strong, and I had them tiered up with a second story for extracted and big-comb honey in the brood-frames; and now the question: One of them filled every thing full from top to bottom, and the rest of the colonies gathered no honey to amount to any thing. Answer in GLEANINGS; and if you can't I will. The answer is an interesting one.

These bees were all healthy, and in good shape. Last year was a very poor one with us. I have had some experience in bee-keeping; have been in the business 19 years. I have 42 apiaries scattered over a territory of 20 miles east and west of North Manchester, and 12 miles north and south—that is, a territory 20 by 12 miles. I have them among the farmers. I do nothing but work them for honey. The farmers attend to the hiving. The most of those bees belong to the farmers, and I work them for honey. I work only about 300 colonies, or perhaps 350. I have a few in two different towns. Probably what is

Digitized by Google

the poorest location one year may be the best next.

I work mostly for big-comb honey in brood-frames in upper stories. I use a queen-excluder, and put in two empty combs on one side to get the bees started up, and the rest are empty frames with good starters all around except the bottom. I can raise more comb honey in this way by far than I can in small sections, and have two combs to every hive for extracting, besides. My! but this big-comb honey does sell! People come with big jars and dish-pans and candy-buckets and tin pails. Where I sell by mail orders I ship in candy-buckets and tin pails. Sometimes an old farmer will come along and take a whole upper story right in the frames. People say this big-comb honey is by far better matured and better flavored than the small-section honey. Think of a Simplicity frame weighing 9 lbs. Bite into one of them, and you go in over your eyes. Think of an entire cluster of bees all working together instead of being divided up into 32 little squads!

I sell my big-comb honey at 10 cents per pound — cheap enough for farmers to buy for work-hands. The low price for something extra makes it sell. All colonies that I think will not swarm, and all new early swarms, I work for small-section honey; but I can control swarming to some extent by working for "big-comb honey" as the people call it.

Where bees were not well protected, the loss this winter is heavy in our portion of the country My loss is altogether from starvation. I lose about ten per cent. I winter out of doors in single-walled hives. I use the Hill device, and pack well with carpet and lots of rags.

North Manchester, Ind., March 20.

[Knowing all the circumstances, you are doubtless able to give a reason why that one colony should do so well in comparison with the others, that is a correct one; but from this point of view I can only suggest that if, as you say, those seven colonies were equal in every respect so far as strength and quarters were concerned, that the one that so far outstripped the others had better workers We once had a colony in our apiary that would fill its hive full of honey when the other bees would be almost on the verge of starvation. Work? We never had any thing like them. Rob? They would clean out any thing they could fight down. The queen of this colony we called the "honey queen," and her daughters were sold at advanced prices. Now, I can only guess that possibly the queen of that particular colony you refer to is the mother of an active strain of bees; and if I am correct in my surmises you have a queen whose stock would be worth developing.

With regard to chunk honey, there are some localities where consumers take more kindly to honey in this form than in the latest section honey-boxes. That more honey can be produced in this way is doubtless true; for the bees will not store so much honey in a lot of small compartments shut off by themselves as they will in one large compartment. That is one reason why I advocate and prefer plain sections and fences—because they afford a more open communication.—ED.]

HOW TO START BEES IN SECTIONS.

Production of Comb and Extracted Honey; a Valuable Article.

BY MRS. A. J. BARBER.

I have been, for several years, very much interested in trying and comparing different methods of handling bees for comb honey. I have been in the business for eight years, and have had fair success. For the first five years I tried a different method each year. Three years ago I tried an experiment that succeeded so well I have followed it up, and have in a measure overcome the two greatest difficulties that I had to contend with—loafing and swarming. We use the eight-frame Dovetailed hives with section-holders, for 4¼x4¼ sections. Our bees would always begin to loaf or hang out on the front of the hives when we put on the sections, and most of them would do but little in the sections until they had lost several days, and then would swarm, thus losing several days of the first alfalfa bloom.

I had sixty colonies of Italians in my out-apiary, and in trying my experiment I tried to be fair. I took 30 supers of half-depth extracting-frames full of comb from the home apiary, and put them on 30 hives in the out-apiary at the same time that I put sections on the other 30 hives. In four or five days the extracting-combs were full of new honey, and the bees excited and busy at their work, while most of those having sections were loafing, and some had swarmed.

I raised the combs by putting a super of sections between them and the brood-nest. At the end of two weeks from putting on the combs those sections under the combs were better filled than those on the hives that had no combs. As soon as the combs were sealed I put them away to extract, having that amount of honey extra, and the bees started nicely in their work. I had only about a third as many swarms from those hives as from the ones with sections and no combs

I liked the plan so well that last year I had enough of those little combs built to furnish a super of them to every colony that was to be run for section honey.

I tried the plan again this year, and from 75 colonies at the out-apiary I had 8000 fine white marketable sections, about 500 lbs. of unfinished and imperfect sections, 1500 lbs. of extracted honey, and about 60 lbs of beeswax, and two barrels of vinegar. We got short of fixtures, and I had to cut out some of my little combs and have the bees build them again to keep them at work. I forgot to mention that we sell a lot of those combs to families for home use, as we can sell them cheaper than sections. When we cut them out we do so after extracting, and then the washings make good vinegar, and the wax goes into the solar extractor, and is of the best quality. We leave half an inch of comb at the top of the frame, to save putting in foundation. I do

Digitized by Google

not believe we shall ever be able to overcome swarming entirely, but I believe my plan stops the loafing better than any thing else I know of. We had 57 swarms this year, but no loafing in the out-apiary. We have bought an extractor for that apiary, and will continue to run on that plan to start them to work. After the first super of sections is well started there is no more trouble about loafing. My neighbors' bees loafed and swarmed through all the best of the season, while mine were hard at work. I wish some one would try my plan, and report.

Mancos, Colo., Nov. 17, 1898.

[There, Mrs. B., you have struck a keynote I have been trying to sound for the last two years. I have found, as you say, that colonies given sections are often—yes, generally—loath to enter them; but if they are given a set of extracting-combs they will go right to work—that is, if there is any honey in the field. Now, when those colonies get into the working-fever (instead of swarming-fever) they will keep right on, even if a super of sections is given them. Some of my friends could not understand how I could produce both comb and extracted honey on the same hive to advantage. The plan I pursued was the same as this, almost exactly. I *know* it has worked very satisfactorily at our out-yard, where I gave it my personal attention, not by directing the work, but by doing it myself. In many cases I used full-depth stories of extracting-combs, but with colonies of moderate strength a half-depth story was used.

Now, I am not going to claim that I discovered this method before you did; but until some one else claims it I propose to call it the Barber method of producing comb and extracted honey.—Ed.]

RAMBLE 165.

A New Treatment for Foul Brood.

BY RAMBLER.

Whenever you find foul brood in a comb, uncap it and wash it all out under a faucet of water running with considerable force. When thoroughly washed, shake out the water as clean as possible; then make a solution of one teaspoonful of *formalin* to one quart of water. Spray the cells full of this solution; place the combs in a pile, and allow them to remain two days; then shake out the solution and return the combs to the hive. In the treatment as given by Dr. Chase he takes the combs only as they show the disease, and continues the practice until all vestige of the disease disappears in the apiary, which would probably take much time.

In treating a colony as a whole it would be necessary to put the bees on dry combs or in a box where they could be put through the starving process while their own combs and hive were being treated. The moist combs could be given them one or two at a time until all are returned. If the treatment will cure, as the doctor assured me it would, the method can be varied to suit the convenience of the operator. The great advantage gained in this treatment is the non-destruction of the combs.

Formalin is a comparatively new antiseptic, and the most powerful now in use. It is largely used by the Red Cross Society in their work in the army. It is manufactured in Germany under a secret process, and is not an expensive remedy.

To persons who wish to try this remedy I would suggest that, where there is honey in a comb, and we wish to make a thorough job, the honey should be extracted and the comb returned to the hive for the bees to clean up; then there will be no danger of other bees sipping the wash where there might be disease-germs. Or instead of washing under a faucet, which would be extremely inconvenient in nearly all of our California apiaries, as the next best thing put the combs to soak in a tank of water. Changes of water with formalin added could be used. I am aware that there has been a prejudice created against the use of drugs, or, rather, has grown from the repeated failures of their use, and to such an extent that Mr. McEvoy, one of our best authorities, comes out squarely and says that foul brood can *never* be cured with drugs. Now, we may be somewhat skeptical when a new treatment with a drug appears; but are we to take the dictum of any one person, and never make another trial? It seems to me if we do, the bars are put up against all progress and seeking for better methods of treatment. I believe that, if there is the merest shadow for success, we should let down the bars and continue the experimentation with drugs.

I can readily understand that, where the germ becomes dried down in the bottom of a cell, or where it is covered with honey, fumigation or slight spraying would have no effect; but by putting said germ to soak for several days there is a chance of rendering it open to the influence of the proper drug. I think I have made Dr. Chase's treatment sufficiently plain so that any one can give it a thorough trial.

Dr. Chase also uses another antiseptic for protecting combs from the ravages of the moth-worm. He allowed me to examine several brood-combs wherein were the well-known silken galleries and the worms, but the latter were dead. His treatment is to set the hives containing the combs in a pile of several in height; place under the bottom hive a few drops of *bisulphide of carbon*, and it soon accomplishes its mission. Comb honey can be treated in the same way, or the disinfectant can be sprinkled liberally in a room where comb honey or brood-combs are stored, with the same effect.

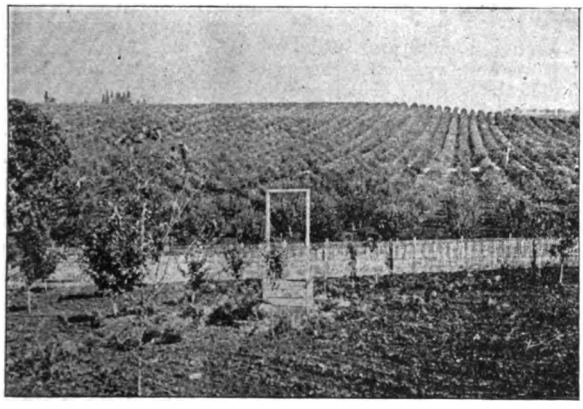
In his practical work in the apiary the doctor uses the Hoffman hive and frame, but it is shortened up to 14 inches in length, and he uses nine frames in a hive, which makes the surface nearly square. He thinks a large hive is not adapted to the climatic conditions in Oregon, as there is so much moisture during certain portions of the year that all portions of the brood-combs that are exposed mold.

Digitized by Google

With this shorter length the bees can cover all the combs, and mold is prevented.

The doctor's product is nearly all comb honey, and he sells it in the home market at 10 cts. per lb. He complains that the farmer bee-keepers sometimes ruin his market by selling their honey at a lower price than is necessary. Said he, "I should like to see some of those fellows who can write so glibly about selling honey in the home market just come here and try it about the time our farmers bring in their honey. I'd like to have them show me how to do it."

The doctor informed me that, though he had sold thousands of hives, there are not many bee-keepers in Oregon who are in the business extensively or exclusively. There are but few in the Willamette Valley and to the south. The greater number are in the northern portion of the State.



THE WAY THEY GROW CHERRIES IN OREGON.

The seasons are variable in this portion of Oregon. In one of the extra seasons, the doctor had produced 200 lbs. of comb honey from one colony of bees, and on one occasion one colony stored 150 lbs in ten days from fruit-bloom. The doctor did not say what particular fruit was most plentiful around Salem; but one can readily imagine that, if bees were near one of those large cherry-orchards which are plentiful in some parts of Oregon, the bees could do a good business in their vicinity. White clover makes a rank growth here; and when the weather is favorable bees do well upon it; but the doctor has known it to be so rainy during the height of the bloom that the bees would not get a drop of honey from it. I suppose it is just as aggravating to the Oregon bee-keeper to have such an abundance of water as it is for us here in California to have such a meager supply.

It is needless to say that I passed two agreeable hours with Dr. Chase; and when I left him I mentally hoped that the blessed bees would again give him success.

The grocer and the doctor gave me directions how to find another bee-keeper who lived two miles out of town; but the misty condition of the weather, and the fact that, through the blunder of the baggage-smasher, my bicycle had been sent on to Portland, caused me to leave in pursuit of it.

At Salem I had a choice of routes to Portland, either by rail or water. The Willamette River is navigable over the intervening 52 miles for quite large boats, and much further up for smaller ones.

At Oregon City, 13 miles from Portland, the river cuts its way through the basalt rocks, and a portion of the city has a very picturesque appearance perched upon the summit of a cliff. The river here plunges over a fall of 42 feet, and gives an immense waterpower, which is utilized for large woolen, paper, and other mills, besides having an electric plant which supplies Portland and all the surrounding towns with light and power. A canal with locks allows steamers to pass this barrier.

The Willamette Valley, which I entered over the Calipooia Mountains, is about 150 miles in length by an average of 75 in width; and it is most fertile and productive. Its output of wheat in 1897 was over 7,000,000 bushels. I found that much of the land was held in tracts of 640 acres. The first settlers were given that amount. Although the valley is the most thickly settled of any portion of Oregon, it would bear a much greater population should these large holdings be broken up. I also find that land is not held at such high valuation as in California. I am informed that prices range from $5.00 to $35.00 per acre.

Oregon, as the reader may know, is divided into East and West Oregon by the Cascade range of mountains. While the eastern portion is at a higher elevation, and colder, the western portion enjoys an equable temperature; and while it is termed Webfoot on account of the amount of the rainfall, the precipitation is no greater than it is in New York or the New England States. I mention these facts because I have received inquiries from the home-seeker about Oregon. In my humble judgment it is better for a young man to make his home in some of these fertile far-western States, where a few acres will produce more than a hundred on the stony hills of the far East. Bee-keeping can be run in connection with fruit-raising; and as the trees become more plentiful and larger, the possibilities of honey from that source alone are encouraging. Just imagine the work there would be for an apiary near a cherry or prune orchard of several thousand trees in full bloom! The western counties of the State seem to be the natural home of the cherry, and it can grow to its greatest perfection only where the bee can perform its work of fertilization.

There were bee-keepers of more or less local note near the little towns of Oregon City and Milwaukie; but they were out a few miles, and the mist and the mud presented an insuper-

Digitized by Google

able barrier to calls, and I hastened along to Portland.

Having in mind the fate of Bill Greene in Portland, and the warning it conveyed, and to fortify myself against any such occurrence, I secured a fine asylum on the fifth floor of the Goodenough building, strictly temperate, especially on the fifth floor. Here I just luxuriated a few days in writing letters and listening to

> The raindrops' showery dance and rhythmic beat,
> With tinkling of innumerable feet

on the tin roof. As I listened, and calmly looked down from my fifth story, and saw the ladies passing to and fro, I used Judge Levering's phrase about rain, and exclaimed, "Let her rip!"

Since my return to Southern California the above formula has been placed in the hands of Mr. M. R. Kuehne, of San Bernardino Co., and he is at present giving it a thorough trial with some hopes of success. Where he has not been successful he attributes it to not having conveniences such as he needed for carrying out his experiments. With his first trials he is confident that he has greatly reduced the ravages of foul brood in the hives operated upon. Further reports will be given later.

[This new treatment for foul brood may work; but in any case it appears to me it would involve considerable labor and some risk; for how is one to know whether he has washed out all the diseased cells? A good deal of apparently healthy brood has the spores of the disease in the blood; and as soon as these develop, the larva dies and decay sets in. I have come to believe that it is dangerous to fuss with foul-broody combs. I would not even melt them up into wax. I would burn them. It saves time and risk. I never yet had a case where the bees of an affected hive drew out foundation but that the resulting comb and brood were perfectly healthy.

I should like to know about this formalin, however. I am not yet satisfied that there has been discovered hitherto a real antiseptic for foul brood. If there are any of our readers who are in position to try this new treatment I wish they would give us the results of their experiments—especially with formalin.—ED.]

FEEDING OUTSIDE THE HIVE, VERSUS INSIDE FEEDING.

Question.—It will be necessary for me to feed my bees considerable this spring, and I wish to know how best to do it. Will it be better to put the feed in shallow troughs out a few rods from the hives, as I see recommended by some, or should I feed in the hive?

Answer.—Outside feeding has been recommended in the past by some good apiarists; and where there are no bees, either in the woods near by or at some of the neighboring farms or houses within two miles of the person wishing to feed, the plan will do. But, as a rule, the person undertaking feeding in such a way finds out sooner or later that he is feeding many other bees as well as his own, and it is not a real pleasant feeling that comes over one when he realizes that he is at dollars of expense feeding bees from which they can not expect to reap any pecuniary benefit. Then such feeding is very liable to engender robbing, especially if the feed given contains any honey, and if given in the scanty supply that is often recommended in stimulative feeding; for when the feed gives out, along in the hottest part of the day, the scent of the just stored feed from the hives places a great temptation before such bees as have just before been carrying feed to their fullest capacity, on now finding themselves suddenly deprived of any more work to do, so they set about trying to get the savory sweet from the hives from which the savor comes; and woe betide the weak colony that does not have sufficient numbers to repel the attack of a numerous throng of excited marauders which have been appetite-whetted only just before, with nothing now, in a legitimate sense, to supply that appetite. Bees placed in such a condition are made fools and robbers to a tenfold greater extent than they naturally are where "left to their own sweet will;" and for this reason alone I do not think it ever advisable to feed outside unless it can be done generously enough so that the bees can have a *full* supply the whole of the day in which feeding is commenced in the morning.

Then, again, by such outside feeding, bees can not be fed in *proportion to their needs*, one colony as compared with the others. Some of the colonies in the yard may have all the honey in their hives that is for their best good, while other colonies may be nearly or entirely destitute, and in a wholesale outside feeding there is nothing to hinder those colonies having plenty of honey from securing fully as much as those on the verge of starvation; and thus it comes about that, while the needy ones are helped, those having an abundance are hindered, from the amount coming into the hive taking up the already scanty supply of cells left vacant for the queen to deposit her eggs in. Thus we have a crowding-out of the queen just at the time when she should have all the room needed in which to deposit eggs which are to develop into the workers for the honey-harvest only a little way ahead. Then should the day in which you commence to feed prove to be one of those fitful ones which we often have in the spring, after an entirely clear, pleasant morning, when the wind rises up, and floating clouds pass over the sun, causing a few minutes of bright sunshine and an equal number of cloudy chilly minutes, many bees will be lost by trying to carry the feed at a time when they will become chilled before they get fairly loaded, or *en route* home; and the loss of a single bee at this season of the year is of more account than the loss of a score—yea, of a hundred—would be just after the harvest of white honey is past.

Digitized by Google

I know that there is something very fascinating about this outside feeding, especially seeing the bees go to and fro in their eager scramble after the coveted sweets; but after years of experimenting along this line I have come to the conclusion that such feeding, as a rule, is a "delusion and a snare;" and it is really but little more work to feed inside the hive, especially if you can have combs of sealed honey to set in the colonies which do not have sufficient stores.

During the first warm days of spring each colony should be examined to find out regarding their supply of stores, and queen. If they have plenty of stores and a good queen, such colonies need not be looked after further till the surplus is placed on the hive, especially by the person who does not think a gain can be made by a spreading of the brood. As to what plenty of honey would mean during early spring, I place the amount at from 10 to 15 pounds. Then if the weather is favorable during all of the early bloom, especially the fruit-trees, they need no further looking after as to stores; but should the weather be such that the bees can secure nothing during fruit-bloom it may be necessary to feed even those which had 15 lbs. of stores in early spring; for honey is consumed very rapidly when brood rearing has reached its height unless there is some coming into the hive almost daily to take the place of that turned into brood. Hence it becomes every person keeping bees to be alert in this matter of stores during the time of the most prolific brood-rearing. Those which do not have the supply of stores named above should be fed in some way. While many believe it pays to feed nightly for stimulating purposes, nearly 30 years of experience along the feeding line compels me to say that, with myself, there is not enough gain made by such feeding, over and above what brood the bees would naturally rear where they have plenty of stores, to pay for the extra work of feeding; hence I prefer the plan of setting in full combs of honey for each colony which does not have at least 10 pounds of honey in early spring, till they have that amount, or, better, the 15 pounds. If I do not have combs of honey enough to go around to all needy colonies I fill combs with syrup to supply the place of the combs of honey.

To fill the combs, take any old milk-pan and punch the bottom full of holes about one-sixteenth of an inch in diameter, punching from the inside out. Place this pan over a wash-tub, or any vessel having a large open mouth, in which you can have room to hold the combs about 18 inches below the pan, when an assistant will pour the (about blood warm) syrup in the pan, from which it will be distributed in small streams which, when falling into the cells, will force the air from them, thus filling them, while other modes of pouring the syrup would result in its running over the surface of the comb more largely, instead of entering the cells. As soon as one side is filled, turn over and fill the other, when the comb is hung away to drain, after which it can be used in any spot or place where a frame of sealed honey can. But this is only my preference. Others can feed as suits their fancy. I give this only as my mode of working after trying nearly every plan yet given to the public.

[We make the following extracts from a paper read by R. C. Aikin at a farmers' institute in Colorado. Although much of it is well known to most of our readers, it is a subject that can not be too strongly impressed on the minds of the general public.—ED.]

There are in the minds of the masses some very crude and erroneous ideas in regard to bees, their habits, and their usefulness. As an illustration, let me tell you what has been reported to me as having been said by a farmer whose face is often seen in these meetings, and who is counted as an intelligent man. Speaking of bees and their owners, he was reported to have said, "The man who keeps bees is just stealing from his neighbors." Your humble servant is one of the thieves hereabout, according to that man's idea. I can, however, produce the proof that my robbed friend is not giving a just compensation to me (my bees) for what he is benefited by them. No, no, brethren, the bee has a very prominent and important place in the economy of nature, and particularly in relation to fruit production. Instead of the bee becoming a damage to the fruit industry, it is an indispensable aid. Instead of the fruit-grower striving to exclude the bees from his orchards, he should encourage their visits. The bees working on the fruit-bloom means far more in returns to the orchardist than that received by the apiarist.

Every bloom must be fertilized; and if not, no fruit will be borne. It is a part of the economy of nature that insects aid in the pollenization of bloom, and of the insects useful in this way the bee stands first of all, particularly in relation to fruit. Botanists tell us that the nectar in the bloom is there for the express purpose of enticing the bee, and that the flower will not secrete the nectar until it has reached that point of development when it is ready for the visit of the bee, to thus be pollenized. The nectar is sought by the bee as food, and as well a portion of the pollen. The bee in the act of gathering these substances not only aids in the pollenization of the blossom on which it is at the instant, but passing to other blossoms with the pollen dust upon its body produces cross-fertilization. The stock-man knows well what cro-sing means in the animal kingdom, and the horticulturist gets the same thing in the botanical kingdom by the transfer of pollen.

But you want more than mere assertions before you are convinced. This institute could not have done better than to have had a lecture by Prof. Crandall, the botanist of the Agricultural College, showing and explaining by charts all these points The State Bee-keepers' Association once had such a lecture by Prof. Crandall, and it was most instructive indeed. He told us there are certain plants that depend exclusively upon insects for distribution of the pollen. Others are not wholly dependent upon the insects, but receive help from the winds. Again, others are self-pollenizing. Upon the whole, very few plants exist that are altogether independent of outside help in this matter.

Almost all our fruits, except the strawberry, have both sexes in the same plant, and almost the entire list depend very largely upon the bee to transport the pollen from bloom to bloom. So great is this dependence of the apple, peach, pear, plum, cherry, and such fruit, that a crop from these can scarcely be expected unless the bees have access to them. The cherry will make almost an entire failure of fruiting unless visited by bees.

The experiment station in Florida selected two peach-trees; one was protected from insects, the other was left exposed. Both set fruit; but when the pit, or seed, of the fruit was forming the protected tree dropped its fruit, but that of the exposed one matured.

It is now well known by many, that, should cold weather prevail during fruit-blooming, thus keeping

Digitized by Google

the bees at home, the crop will be very materially decreased as a result, and, as before indicated, the cherry will be almost an entire failure if insects can not reach the bloom. Last year two prune-trees in my apiary, with bees under and all about them, bloomed for the first time. Considering the killing frosts of last spring I thought it doubtful if I should get even a sample of fruit; but it seemed that almost every blossom gave a prune.

Clovers of all varieties are aided in the same manner by the bee. The blossom-cups are so deep in the red clover that usually the common bee can not reach the nectar, and do not work this variety; hence it depends mostly upon the bumble-bee. Australia had no bumble-bees; and when they planted the red clover there it would not seed because of lack of fertilization; and to remedy this they imported those bees from this country, and all went well thereafter. Cut open a lopsided apple, and in the undeveloped side you will find no seed. The undeveloped part was caused by a lack of fertilization on that part of the bloom.

FASTENING FOUNDATION IN FRAMES.

Dr. Miller:—I see in GLEANINGS for Dec. 15 an article about sticks in frames for fastening the foundation. 1. Please let me know the size. 2. Will these answer for extracting without any wire in frame? 3. In speaking of the engraving under No. 1, "half bottom not yet nailed on," does this mean that there are holes in top and bottom bars for insertion of the sticks? 4. How are the sticks imbedded in the foundation? 5. Which foundation, "medium or light," is best?

Ashland, Ore., Jan. 23. W. C. MYER.

1. The length is ⅛ inch less than the inside measure from top to bottom bar, and the sticks are $\frac{1}{16}$ inch square. The reason for having the sticks ⅛ inch shorter than the space between top and bottom bar is that it is easier to handle the shorter sticks in putting them in; and, besides, basswood (of which timber the sticks are made) increases in length as well as thickness when it swells, and when the wood is thrown into boiling wax I think it likely that it increases in length.

2. Yes. I extracted about 300 pounds from such combs that had been built the same summer, and there was no trouble.

3. No. The sticks do not necessarily touch either top-bar or bottom-bar, and there are no holes to let them in. The object of having the bottom-bar in two pieces is to allow the foundation to go between the two parts. The foundation is cut ½ inch wider than the inside depth of the frame. That allows ¼ inch at the top to go into a saw kerf in the top-bar, and ¼ inch at the bottom between the two parts of the bottom-bar. The foundation is cut so as to make a close fit to the end bars at each side, the frame is put on the board, such as is commonly used for putting foundation in frames; the foundation is slipped into the saw-kerf of the top-bar, and then the second part of the bottom-bar is put in place, a single small wire nail is driven at the middle to fasten the two parts of the bottom-bar together, and then the remaining nail is put into each end of the bottom-bar. Top-bars and end-bars are 1⅛ inches wide, and each part of the bottom-bar ½ inch wide. That allows ⅛ inch between the two parts of the bottom-bar for the foundation.

4. If you put in the dry sticks, the bees will gnaw them out every time. Put a little bunch of the sticks in melted wax, keeping the wax where it will stay hot. At first the air and moisture in the sticks will make a great frothing, and you will not imbed any till all settles and becomes clear. Then with a pair of tweezers, or something of the kind, lift a stick out of the wax, lay it in place, and press it into the foundation with a presser made of a little board about as long as the sticks, or not quite so long, and about ⅜ inch thick. The edge that presses in the sticks must be kept soaked in water, so the wax will not stick to it. Five sticks are used in a frame, one about an inch from each end-bar, the other three at regular intervals. In rare cases I've had the bees gnaw at the sticks, even when cooked in wax, but I don't know why.

5. I have used rather heavy foundation (some I've had on hand for a number of years), but it may be that light foundation would do just as well. Certainly just as light foundation can be used as if wire replaced the sticks.

These sticks allow the combs to be built solid to the bottom-bar (but sometimes the bees will dig under), and I know of no advantage in any way that the wires have over them.

Marengo, Ill. C. C. MILLER.

PERFORATED SEPARATORS, ETC.

1. I have a lot of wooden separators, and should like to know if it would be any advantage or disadvantage to bore ¼-inch holes through them so as to allow a passageway.

2. What do you strain your extracted honey through, and in what way?

3. About how often and how much do you feed an average colony to encourage brood-rearing?

4. Is there any advantage in having a bee-way on top of the sections?

5. I wonder how many put sections in a damp place awhile before folding, instead of wetting or steaming them. It goes ahead of either way if you do it right.

WALTER GARABRANT.

Mendham, N. J., Mar. 28.

[1. Separators with perforations in them are better than those that are plain, I believe. I would suggest that you try a few supers equipped in this way: Half the super with plain separators, and the other half perforated. Note particularly the filling of the sections, and the rate of filling of the two lots.

2. We recommend an ordinary cheese-cloth sack, suspended under the mouth of the honey-gate.

3. About half a pint of syrup daily is considered a very good allowance for stimulative feeding.

4. There must be a beeway in the top of the sections, provided the supers are tiered one above the other. Closed-top sections are used only when one super at a time is allowed on the hive; but if there is a good honey-flow and a big colony the bees work at a disadvantage when they have only one super.

5. A good many practice the plan; and I

Digitized by Google

believe it results, in general, in less breaking than where the grooves are dampened just before the folding.—ED.]

HOW TO PREVENT SWARMING.

As soon as your bees get strong enough to show signs of swarming, get some combs and put an upper story on your hives (if not already on). Place a queen-excluder between the upper and lower story. Now put queen-cells in the upper story, with some two or three frames of brood up there, with an entrance at the rear end of the upper story. As soon as your queen has begun to lay, lift your upper story off; raise your excluder, and catch the old queen, and kill or do something with her; then put your upper story back without the excluder, and the work is done, and your hive has not been without a laying queen at any time; and my experience is, the young queen will not swarm, no matter how many bees you add to her hive. I think this the cheapest way to manage them.

Elmont, Tex., Feb. 7. J. F. TEEL.

[This is an excellent way to requeen with young blood; and while a colony with a young queen is not as *liable* to swarm, perhaps, it would hardly be safe to assume that such colonies would not swarm. If you try the plan on a larger scale I think you will agree with me.—ED.]

OLD-STYLE WIDE FRAMES; DOUBLE-TIER EIGHT SECTIONS.

I noticed an article in my last GLEANINGS, Feb. 1, written by Alfred Atherton, of Oramel, N. Y., referring to the old-style wide frames, and also noted the editor's objections to the same. I, like Atherton, prefer them to any other device for procuring comb honey. I have never found the objections referred to by the editor. I never use dummies to fill with—I always put on full top (48 sections). You speak of their being hard to get out of a hive. Perhaps you don't go at them right. Let me refer you back to GLEANINGS. June 1, 1898, p. 438, you will notice that the correspondent took 6000 lbs from 60 colonies, spring count, and asks if you would like to know how he did it. I will tell you the secret for him (I don't mind telling you). He used old-style wide frames, and says they are good enough for him. My wide frames are the same width as my sections (1½ in.), and I use plain sections and the fence separator, double tier.

Noble, Ill., Feb. 3. E. E. MCCOY.

[Every one to his likes and dislikes.—ED.]

NIVER'S EXPERIENCE WITH A BUZZ SAW.

Dear Friend Root:—As our friends the Quakers say, "the spirit moves" me to have a little chat with you this morning, as I am off duty, and away on a visit to a friend here in this city of prisons. GLEANINGS for Dec. 15th had not shown up when I left Groton yesterday; but the Dec. 1st number had an experience in it, page 880, on making hives by hand, that seemed to touch a tender spot in my memory, and a somewhat similar experience has left tender spots on my fingers and ribs, so it is natural to write it to you in order that you may relax your regular "editor Root" dignity of countenance and smile with me.

Since Morton's death I have been working in the shop with the machinery, and finding out how easily a stick will come back at your ribs from the saw; and although I haven't caught one yet on the nose, like that chap who saved 90 cts. by building bee-hives (or came out just even if putty isn't cheap in the spring), I did worse; for, in forgetting the old saw, "don't monkey with the buzz-saw," I learned that stopping a buzz-saw with my fingers isn't a success It slashed into two fingers of my left hand—not so badly as it might have done, as it left bones intact, but bad enough to inspire a very wholesome respect for that same "hollow-ground cut-off."

Auburn, N. Y., Dec. 17. S. A. NIVER.

WIDE ENTRANCES FOR HOT CLIMATES; SWARMING DIMINISHED.

I have been troubled very much every year from my combs melting. I used only a ½-inch entrance, whole width of hive, and my foundation and new combs would all melt down till this year when I blocked all my hives up on ⅞-inch blocks, and never lost a comb, and my bees seemed more at ease. There was not such a roar from them in fanning, but my bees are right out in the sun, and it would make quite a difference if they were under a shade. But I find the bees winter much better out in the open, and commence rearing brood earlier.

There was not a general good honey harvest here this year, although I made a rousing big crop of combs, nearly 150 lbs. per colony.

I forgot to mention my good "luck," if I should so term it. I had only two swarms to issue the whole season, from my home apiary of 125 colonies that I set up on the 4 ⅞-inch blocks. Swarming has been our greatest trouble in past years, some days having as many as 60 swarms. J K. HILL.

Uvalde, Tex., Dec. 7, 1898.

THE TALL SECTIONS.

I see on page 127, Feb. 15, friend Aikin tells why sections with a *long* entrance are better. That is the kind I have been using for years, and you have been making them for me. Try them. HENRY WILSON.

Clinton, Ill.

FOUL BROOD IN CUBA; WHENCE CAME IT?

Mr. W. W. Somerford said, page 82, that foul brood was introduced by D. A. Jones sending queens to Cuba. It is very probable that Mr. Pedro Casanova was mistaken in this respect, and that this assertion is unjust to Mr. Jones, because foul brood was spread all over Cuba long before this. Dr. Dzierzon, in Germany, infected his apiary by feeding Cuban honey in the year 1848, and lost nearly all his colonies. So it is very probable that, unknown to Mr. Casanova, foul brood was

Digitized by Google

introduced in his apiary from the neighborhood. L. Stachelhausen.

Converse, Tex., Feb. 9.

WOOD VERSUS TIN SEPARATORS.

"Please tell me your opinion as to the merits or demerits of tin versus wooden separators," writes a correspondent. "The reason I ask is that the modern super is not made wide enough to admit of wood separators, but tin can be used. Will bees store as much honey with tin as with wood?"

Answering the last question first, I think bees make no difference between tin and wood as to the amount of honey stored.

Aside from the matter of cost, durability, and thickness, the chief difference between separators of tin and wood is that, on account of the stiffness of the grain, wood easily remains straight and stiff lengthwise, and tin bends lengthwise. On the other hand, wood bends more easily than tin in the other direction, and, what is of still more consequence, the wood shrinks and swells, and tin does not. The result of these differences is that tin is the proper thing to use where the separators are held rigidly in place lengthwise by being nailed, and wood is better where separators are not nailed. Nail a wooden separator in place, and it will curl up in a very unsatisfactory manner. It will do better with a single nail at each end, but that is not entirely satisfactory. If you attempt to use a tin separator without nailing, it is very easily bent in the direction of its length, and it doesn't take much bending to throw it a quarter of an inch out of its proper plane, which means that a section one side of it will be a quarter of an inch too thick, and its opposite neighbor as much too thin.

You will then see that it will not do to substitute tin in a super designed for wood, and *vice versa*. But I don't understand what kind of modern supers you can have that are not wide enough for wooden separators. Your separators are hardly more than $\frac{1}{16}$ thick, and your supers are hardly less than 12 inches wide. That will admit six sections with their accompanying separators, providing your sections are not more than $1\frac{5}{16}$. Such wide sections are not much used now, and I think most supers for eight-frame hives are 12⅛ inches wide, making it necessary to use a follower and wedge to fill up the vacant space when sections are 1¾. In any case, if there is not room enough for a given number of sections, one less across can be used, filling up the space with followers and wedges.

Marengo, Ill. C. C. Miller.

TRAVEL-STAIN; A THEORY AS TO ITS CAUSE.

My observations lead me to believe the main cause of travel-stain to be the clustering of very young bees on the combs. The warmth of the cluster and dejections of young bees discolor the cappings. That seems to explain why stained cappings are seldom found in queenless colonies or others having no hatching brood in them. To have sections finished by newly hived swarms, and removed before any young bees have emerged from the cells, I have found in my locality to be the best way to prevent so called travel-stain.

Jas. Comeau.

Henryville, Que., Jan. 26.

SWEET CLOVER; HOW TO GET RID OF IT, ETC.

Mr. E. Smith's advice to L. A. Sawyer in regard to getting rid of sweet clover is sound. It is just what they do here, and (I am sorry to say) they succeed. Sweet clover is termed a noxious weed in this locality. Street commissioners, road supervisors, and railroad-section foremen have strict instructions to cut it before it blooms. In this, however, they do not always succeed; but they do as a rule get at least the most of it cut before it can ripen its seeds.

As I saw this wholesale destruction I remonstrated vigorously, and I used A. I. Root's well-known phrase, "It will never trespass on cultivated soil, or any pasture;" but there I got my foot in it. I was shown places where it had got a rod or more into a pasture-field and also in meadow.

Will cattle not eat it? Yes, they do; but not as long as they have plenty of June grass; and by the time June grass is scarce the clover is too big. If the farmers would cut it only once, then the cattle would take care of it after the June grass is gone. A year ago last August my bees were storing honey fast, and it all came from the sweet clover. We had had some rain, which had started the clover anew. One day I went to Plasterhead, about 3 miles distant, and along the roads I saw a sight of beauty — the fresh green of sweet clover, and only 6 or 8 inches high, loaded with bloom, and my bees were fairly swarming on it. A flock of half-starving cattle and pigs tried in vain to get their heads through the fence and get a bite of it; but as I returned, three men were at work, cutting down the "noxious weed" that the starving cattle were not allowed to get a bite of; and next day my bees began robbing. I had 62 colonies, and might have got many pounds of honey had it been left; but it is a "noxious weed," and must go. Julius Johannsen.

Port Clinton, O., Feb. 7.

SWEET CLOVER IN THE SOUTH; QUALITY OF THE HONEY.

I see so many running down *Melilotus alba* that I feel like saying something in its behalf. It is the first of our forage-plants to come in the spring, and the last to be killed down in the fall. Stock eat it readily until it becomes rather woody, and even then eat the smaller shoots. We grow it for pasture, for hay, and as a honey-plant. We have no trouble whatever in getting rid of it here. Our greatest trouble is in keeping it set where stock is allowed to run on it. Melilotus being a biennial, we either have to keep stock off or resow every two years. It makes a rather thrifty growth on our thinnest soil, and even where the soil is washed, leaving the white limestone exposed, you will find our melilotus there by itself. We keep from 40 to 50 colonies of

Digitized by Google

bees, and almost our entire crop of honey is from this plant. Our extracted is *almost* transparent (that is, almost water-white), and of a splendid mild flavor.

My uncle (a nurseryman), from Southern Illinois, was with us during the holidays just past. He was something of a bee-keeper until foul brood got a start in his yard last summer while he was sick, and left him nearly beeless. He pronounced our melilotus honey as good as the best. We usually sell all we get here at home, and have none for sale now. Hence it can not be said that we have an ax to grind because we praise it, but because we think we have a valuable forage and honey-plant in melilotus. L. H. GOULD.

Crawford, Mass., Feb. 1.

THOSE IDEAL PLAIN SECTIONS; BETTER FILLING.

I was fortunate enough to secure through Lanetter & Co., Sydney, 1000 of your Ideal sections and some fences; and although we are having a rather poor honey yield I have managed to get some of them filled, and I must tell you that all I have shown them to consider them far ahead of the square section so far as pleasing the eye is concerned, and that has a deal to do with the selling of a honey or other crop. One of my best retail customers in the city of Brisbane remarked on being first shown them, "Yes, they are much nicer," subsequently labeling, "This season's comb honey; perfection." The bees seemed to fill them more readily, doubtless because of the freer communication afforded by the fences. J. M. MITCHELL.

Glenhope Farm, Indooropilly,
Queensland, Aus., Jan. 2.

COLOR OF CAPPINGS DEPENDENT ON SEASON.

I have noticed that honey capped during a good flow is generally whiter than that capped when honey is scarce, and this Mr. Crane partly acknowledges; for he almost says that the upper part of a section is capped white because honey was coming in plentifully, while the lower portion was darker, because honey was then coming in slowly; and in another case the middle portion was dark because it was capped between two good honey-flows. Has Mr. Crane ever bleached eight sheets of foundation and placed them in a hive when honey was coming in? I have done this, and the combs have been as white as snow. My reasoning on the matter is as follows:

Wax, as produced by a bee, is snow white, as every one knows, and during a hasty period of comb-building the combs will be pure white; but should the bees have the time and labor to spare, then they color the wax to correspond with their surroundings; hence a new comb built adjoining an old dark comb will, under ordinary circumstances, be colored by the bees, so as to keep up as much as possible a uniform appearance within the hive. Take another instance:

Place a white and a black comb in any brood-chamber, and see if the bees don't color the cappings to correspond. So you see my theory in reference to getting white comb honey is that we must give white foundation and keep every thing within the hive as white as possible, and try to have our honey capped during a rich honey-flow. These things may be difficult to control; but if we know the cause for certain, then we can avoid many a mishap. Can not any observer of nature verify what I have said, when we find so many insects coloring their nests or eggs to correspond with adjacent articles? and has not nature made many an insect's color to correspond with its home? If you take a frame of old dark comb and cut off a portion, and place it in a hive, won't the bees color the new wax to correspond, where the old and new unite? But as honey comes in quickly after they have started to build, they run off to pure white at the remaining portion of the comb. I have not noticed particularly, but I dare say that bees will cap dark honey with darker cappings than they do white honey, if there is not a heavy flow on at the time. Ask Mr. Doolittle the color of his queen-cells built on light and dark combs.

JOHN R. V. BRAHAM.

Ewarton P. O., Jamaica, March 6.

LARGER QUEEN-CELLS.

In reply to an article I saw in GLEANINGS to-day, with regard to rearing larger queens in large sized cell-cups, I will say that my experience has not panned out that way. I find that bees will always contract the edges of the cell-cup, no matter how large the base; or they will expand the base and then contract as the cell is drawn out, even in worker or drone cells. I have experimented with this plan, but could see no difference in queens. A queen-rearing colony depends largely upon this condition. J. D. FOOSHE.

Coronaca, S. C., Jan. 4.

AN OLD FRIEND IN A NEW LOCALITY.

I have just landed here 200 miles north of Newhall, with all my bees, help, and appurtenances, to run two apiaries and a home. My! what a job! Every hive carried safely, and here we are in the midst of alfalfa fields, with melting snow in sight on the Sierras, flowing water over the fields, and leaving us all the large carp and trout on the grounds that we can use. R. WILKIN.

Famoso, Cal., Mar. 30.

IS HONEY A VEGETABLE OR ANIMAL PRODUCT?

Will you please tell us whether honey is an animal or vegetable product? And are the molecules in honey of the same nature as those in the nectar of flowers?

HERBERT L. MCLALLEN.

Trumansburg, N. Y., Jan. 31.

[There is a difference of opinion as to whether honey is a vegetable or animal product. Strictly speaking, it is of vegetable origin, and should really be considered such; but the bees do nevertheless change the nectar of flowers, a vegetable product, into honey that has other

Digitized by Google

elements placed therein by the bees during the process of ripening. The nectar of the flowers is not the same as honey.—ED.]

"HE;" THE IRISHWOMAN'S CALF.

I want to tell Bro. Hasty a story in support of using the pronoun *he* on all occasions, and without regard to sex. An old Irishwoman lives near us, whom we all call Aunt Mary. She is quite old (she does not know how old); can not read or write, is very energetic, and a great talker — surely a good "household" authority. She keeps a cow, a pig, and chickens. A year ago last summer her cow raised a calf that gave her a great deal of trouble. On one occasion "he" wound her up in the rope by which she led "him," and trampled her severely. Said she, "I thought sure an' he would kail me, and all I could do was just to say, the Lord have mercy! and he jist kept a pullin' at the rope." And again, she said, "I want to sell him. He's a nice calf. He's a heifer."

With this Mrs. B. came near going head first into the wash-tub over which she was standing, in her effort to keep back the laugh. You see she had not learned the rules of literature yet.

Now, Mr. Editor, Mrs. B. has it in for you just a little for what you said on p. 82 about associating "she" with "softness," for she says some of the softest things she ever saw were two-legged animals in the shape of men, and she has seen women just as "smart" as their brothers or husbands. Of course, she makes no allusion to her husband or to you either. J. W. BEAUCHAMP.

Hatfield, Mo.

[Aunt Mary was fully justified in using the pronoun *he* when referring to her obstreperous heifer. As I said, I associate with the pronoun *he* smartness and wickedness; and if that calf did not possess those qualities, then he should have been called *she*.

Yes, I know there are some men who are quite feminine in their general make-up, and I should be inclined to refer to them as *she*. There, I had better not say any thing more, lest I get into trouble —ED.]

SELLING HONEY; SOME OF THE PLEASANT FEATURES OF THE BUSINESS.

Soon the time will come to dispose of the crop of honey we shall have been able to secure, and, at the same time, develop the home market. After I had traveled over my usual route last fall, one warm sunny day I went in a new direction. While enjoying the warm sunshine of a beautiful fall day, having driven about three miles I espied a man pulling turnips. I left the team and went to him and inquired if he would like some honey. His reply was: "Wall, now, yes. I would like some honey; but you see times are hard and money is kinder scurse, and farm stuff don't fetch much; so I guess I'll have to do without it."

I had quite a talk with the tiller of the soil, and it ended in my selling him eight one-pint jars of extracted honey. I took my pay in turnips.

The next place I called at I took an old sewing-machine, and I will endeavor to make a section-cleaner out of it.

In this way I passed a most enjoyable day in disposing of 300 pounds of extracted honey and 100 pounds of comb.

There was one little incident which pleased me more than all else. At the last place I called, there were some children. The mother said she would like some honey if she had any change. One of the little girls asked me if I would give them some honey for some guinea pigs. Well, I could not refuse the little tot; and so, in exchange for a pair of the guinea pigs, I gave her a pair of rabbits and some honey, as she thought the pigs were worth the rabbits and honey together.

When I got home I had a mixed wagonload consisting of turnips, eggs, beets, a sewing-machine, a calf, a pair of guinea pigs, and $16 in money.

Why is it not as well for the producer to exchange his product with those he deals with? Perhaps it is not convenient for all to do so; perhaps others would or could not get the enjoyment out of such a day's work as I do. The pleasure that the little girl got from the exchange of the rabbits and honey for the guinea pigs was worth more to me than all the money I received. I gave the pigs to another little girl, and she was made happy.

Charlton City, Mass. GEO. L. VINAL.

MILLER'S RACK FOR HAULING BEES; HOW TO MAKE IT.

Dr. Miller:—I can not get as much from the photo in GLEANINGS as to construction of your rack for hauling bees as I should like. Could you make a diagram? What are the dimensions of the two pieces you build on? Do you make the under side, or floor, close. How fasten top pieces to the frame? How fasten the hives to prevent toppling over?

Steel Creek, N. C., Jan. 18. A. L. BEACH.

I'm afraid I couldn't make a diagram that would add much to the idea you get in the photo; but I think that, by answering your questions, I can give enough information to enable you to make a rack. Its advantage is that, at a very small expense, you can make one to fit any wagon you may happen to have. It is no doubt better to have a wagon with springs, but that is not absolutely essential.

Answering your questions in order, the two pieces I build on are fence-boards 4 inches wide, but that's nothing to you; they must be just what the wagon requires. The under part of the rack, or floor, is not close. The top pieces are nailed on with 2½-inch wire nails. The hives are not fastened on at all.

Now I'll try to answer more in detail. You are supposed to start with a common wagon-box. Make a frame after the usual manner of making a wagon-box deeper, having it of such depth that, when put on, it will make your box just deep enough to take in your hives, for you will want to fill your box with hives before putting on the rack. Your rack may

Digitized by Google

just as well be two feet or so longer at the back end than the wagon box, so it will hold more hives, and you can reinforce your frame at the back end by nailing on pieces at the side; otherwise the hives might break down the part that proj cts. Cleats after the usual style must be nailed on the outside or inside of your frame to keep it in place on the box.

Now take fence-boards 6 inches wide, and cut into lengths about 7½ inches longer than twice the length of the bottom-board of your hive. If your bottom-board is 22½ inches long, as mine are, then your boards must be cut 52½ inches long. The number of these boards must be one more than the number of hives you will have on each side of your rack. Now distribute these boards on top of your frame, spacing them at equal distances, so that the space from center to center shall be 1⅛ inches more than the width of the bottom-boards of your hives. Nail them on. Take a board 4 inches wide and the whole length of your rack, and nail it on the top of these cross-boards centrally. That's to keep the two rows of hives apart. On each side, to keep the hives from sliding off, nail a strip an inch thick and 1⅛ inches wide. To keep the hives in their places sidewise, nail on the center of each board, and, running in the same direction as the board, a strip about 18 inches long and ⅞ square. Of course, these strips may be more than 18 inches long, but there's no advantage in it. At the front end and at the back end, instead of having this strip at the center of the board place it on the outer edge and space the boards accordingly. For lighter handling the rack may be made in two parts, as is the one in the photo.

The hives are loaded in the wagon-box, running crosswise, and between each two is placed a stick ⅞ inch square, and as long as the inside width of the wagon. Thus the hives are held firmly in their places. Then the rack is put on and filled. C. C. MILLER.

Marengo, Ill., Feb. 23.

EATING A POUND OF HONEY AT A SITTING; 4×5 VS. 3⅝×5 SECTIONS; A POINT FOR PLAIN SECTIONS.

Mr. Editor:—Since reading what Stenog says in GLEANINGS, p. 79, in regard to eating honey, I have wanted to tell of a little circumstance that happened in this neighborhood. Two fellows on their way blackberrying called at my apiary and bought two well-filled 4×5 sections of honey, and took them along to sweeten their noonday lunch. We afterward found the pieces of the sections, and the fellows admitted they ate it all at the one meal. They said they would not if they had thought before cutting into them; but after cutting, the honey leaked so they had to eat it to save it; and the strangest part of it is, they claim to have felt no discomfiture from it.

I was much surprised at Mr. Crane's finding the 3⅝×5 sections so poorly filled (p. 125), as I tried a few of them last season, and they were much better built out to the wood than my 4×5 beeway sections on flat tins without separators. They were all filled out almost exactly alike, much better than the one shown on page 126, but I was disappointed in their weight. One 12-lb. case weighed 11¾ lbs. One lot of about 70 lbs. averaged 14½ ounces. I should much prefer to have sections weigh an even pound. I find, in using sections without separators during a light honey-flow, the bees are very apt to fill all the sections one-half or two-thirds full, while with fences they fill what they do work in, and leave the rest comparatively untouched. EARL Y. SAFFORD.

Salem, N. Y.

[Most markets prefer sections weighing a little under a pound. The 3⅝×5 is not intended to hold quite a pound.—ED.]

PLAIN SECTIONS COME TO STAY.

I notice Doolittle gives you a "raking over" in the *Progressive*, regarding plain sections, etc. Never mind. "They laugh best who laugh last," and you can afford to let them laugh now. The plain sections and fences are come to stay; and my regret is that I did not order all of that kind last season instead of some of the old kind. I wanted to go slowly, as some would say; but I am going faster now. I took up 1500 of the old kind to the mill, and cut them down so that they will take the place of no-beeway ones. I had them done in the jointer, and it was not a very big job either. Common sense is on the side of the new section. G. A. DEADMAN.

Brussels, Ont., Mar. 16.

G. U. U., Mo.—Sometimes colonies under very adverse circumstances will winter very nicely, and those under favorable conditions will winter poorly; but as a rule, colonies in double-walled protected hives winter far better than those in single-walled.

L. A. S.; N. Y.—Stimulative feeding can be practiced now at any time—the sooner the better. In general, bees should not be fed during cool nights. About half a pint of syrup fed daily, or even a less quantity, will start brood-rearing going at a good rate; but hives should be well packed and well protected if the weather is at all cool; otherwise there is liable to be a chilling of the brood during a sudden change of weather.

W. W. S, N. Y.—We have no real preference between the super for holding 4x5 and that holding 3⅝x5. The preference will be based somewhat on the fact of your using an eight or ten frame hive. If the latter, then the Danzenbaker super would be more convenient. If the former, then the Ideal would be the one. The 4x5 sections in some markets may be a little more salable because, for the same weight, they look larger; but either section sells well. In New York, at least, tall sections are coming rapidly into favor, and it seems it will be only a question of time before the 4¼ square will be shoved out of the New York markets.

Digitized by Google

CONTINUED warm weather is bringing a smile to many a bee-keeper.

OUR 251 outdoor chaff-packed colonies are all alive except 16; but a good many of the survivors, I am sorry to say, are somewhat weakened.

A PECULIAR SPRING.

I DO not know how it has been with you, friends, but with us the cold March winds have continued on into April, and it was only yesterday, the 10th, that we had it really warm enough for the bees to fly; but it is encouraging to note that the weather is gradually moderating. There seem to be no fits and starts about it this year. Almost every spring heretofore, so far as I can remember, we had some very warm days followed by some that were decidedly wintry, one extreme following the other; but this spring it has been one cool or cold streak almost continuously. We now expect better weather. *So much* cold ought to bring warm.

WING-CLIPPING; CREDIT TO WHOM CREDIT IS DUE.

FROM our recent foreign exchanges it appears that I am the sole promulgator and originator of the practice of clipping queens' wings for the purpose of more easily controlling swarming. Not only this, but they have been making out that I began the practice forty years ago—three years before I was born. Why, my dear friends across the big pond, it is only very lately that I have become a convert to the practice; and it was then only when it had been hammered into me by bee-keepers more practical than I — yes, by bee-keepers who practiced wing-clipping, I was going to say, almost before I ever saw the light of day. While the practice is not entirely universal in this country, it seems to be general with very many of our best bee-men.

THE EFFECT OF THOSE RAINS IN CALIFORNIA.

IN regard to this the following note just received from Mr. Martin, who is keeping us posted, will explain:

I wish to make a litt'e further report upon the honey prospects for this portion of the State. The majority of the bee-men think that the rain came too late to be of material benefit. However, it came early enough to save thousands of colonies of bees. There will be enough honey gathered to tide the bees through, and perhaps a little surplus may be gained. This may be particularly the case near the coast; and from the appearance of honey-plants near my own apiary I am in hopes of getting something of a honey crop. The black sage is very plentiful, and it is making a good growth. It will be a little later in blooming, but will surely yield some honey. At this date the bees are getting honey from alfilaria and the California walnut. My bees are quite strong, and ready for any nectar that comes along. In and near Pasadena, where the bees have access to orange bloom, I learn that the bees are swarming; therefore the bees are hopeful themselves. I have great faith that we near the coast shall have a fair honey crop; at any rate I will stay in Southern California and try it. J. H. MARTIN.

Shermanton, Cal., April 4.

WINTER LOSSES UP TO DATE.

REPORTS are still coming in, showing winter losses here and there over the country, and it begins to look now as if the mortality would be greater than in any other year unless it was during the winter of 1880–'81, when the losses were greater than ever known before or ever will be; but at that time the correct methods of wintering were not as well known as now, and it is not possible that the loss will be any thing like as severe. But very fortunately the severe losses are by no means general. In one section of Michigan, where there have been heavy snows, there is a general report that the bees have wintered nicely, when a year ago there were very heavy losses. In Indiana the mortality has been great. In New York the bees have wintered fairly well, because in that State bees are generally wintered in the cellar; or if not in the cellar, those on summer stands have been well protected by heavy snows.

The peculiarity of the past winter was that zero weather was not confined entirely to the North. Even as far south as Texas there was considerable zero weather as well as in other portions of the South. The general unpreparedness of the bee-keepers for such extremes will make wintering losses in the South as great, perhaps, as in the North. Here at Medina, at this date (April 12), the weather is growing daily more mild, and we hope the worst is over.

BLEACHING THE SURFACE OF TRAVEL-STAINED COMB HONEY.

I HAVE often wished that there was some method or process by which we could take the ordinary travel-stained comb honey and whiten its surface by bleaching or washing. Tons of first-class honey — the very best in the world—is travel-stained. It is well filled out, even in surface, and in quality the very best; but it must sell for a cent or two less a pound, simply because it is travel-stained. If by some simple process these soiled surfaces could be cleaned or bleached white, or nearly white, it would make a difference of hundreds of dollars in the bee-keeper's profits in a single season. It would be a great boon to the commission men, because a "good-looker" always sells more readily than a "poor-looker."

I received a note from Mr. Byron Walker, who seems to be very confident that he has found a process that will accomplish this result; and as soon as he gets over his rush—for he is indeed a very busy man—he proposes to tell the readers of this journal the *modus operandi*. I wrote him that, if he had a successful method, he had made a very important discovery. In answer he expresses his confidence in the method, stating that it is so simple he wonders nobody ever thought of it before. Indeed, he is rather of the opinion that some one must have known of it.

What good, you may say, is all this without

Digitized by Google

knowing the method? In the first place, I wish to find out whether some one else has a plan; and in the second place I wish to draw attention in advance to the importance of such a discovery and its value to bee-keepers generally. A good thing should be heralded in advance.

NO-DRIP CLEATS FOR SHIPPING-CASES; HOW WIDE AND THICK SHOULD THEY BE?

WHEN we first put out what we called the no-drip shipping-case—a case that has a paper tray in the bottom, and cross-cleats just thick enough to raise the sections off from the paper, we made the cleats ¼ inch thick by about ⅝. They were made thus for about a year; then there came a general clamor to have the cleats made thinner. Accordingly the following season, and even up to the present time, we made the no-drip cleats ⅛×⅝. Henry F. Hagen, of Rocky Ford, Col., instead of nailing these cleats in the bottom of the case, smears a little honey on the under side of the cleat, and simply lays it on the paper, spaced a proper distance apart. Of course, it is well known that honey is almost as good as glue when used in this way; and *because of this very fact* arose the necessity of a cleat to raise the section off from the paper. But very lately one of the most extensive honey-buyers in the United States, Byron Walker insists that it is a great mistake to have the no-drip cleats less than ⅜ thick; that those only ⅛ thick are not thick enough to prevent honey from coming in contact with the bottom of the sections when there is very much drip. As he speaks from the standpoint of a producer as well as from that of a buyer, it may be well to consider whether we were not wrong in changing from thick to thin cleats. There is this to be said in favor of the thinner cleat: It is quite thick enough providing honey is attached to the wood of the section as it should be; but much of the honey that was sent to market early last season was in sections that were only partly filled and poorly attached. In consequence there is a large amount of drip, and this will not be taken care of by the ordinary thin cleat.

From the standpoint of a manufacturer we desire to please our friends and customers; but before we make a change again we must have a general consensus of opinion favoring either the thick or the thin cleat; and this opinion should come from both the honey-buyer and the bee-keeper, not forgetting the commission man, who has unlimited opportunity for observation.

HOFFMAN FRAMES, AND HOW TO HANDLE THEM.

A VERY interesting article on this subject appears in the *American Bee Journal* for April 6, from the pen of our old friend and correspondent C. Davenport, one of the most practical writers in all beedom. He has come to be recognized as such by the fact that his communications appear in nearly all the leading bee journals. In the article above referred to he says: "I consider self-spacing frames of some kind (if hives have to be moved to and from out-yards) as the only kind worthy of being considered; and even if hives are to remain in one yard permanently, I think self-spacing frames are far superior to loose-hanging ones." Of Hoffman frames he says that, after having tried a great many other kinds, he greatly prefers them to all others. He says further, "I do not think there is any locality where propolis or bee-glue can be much worse or more plentiful than it is here."

The main reason for his success in the handling of these frames he attributes to a simple tool which he uses. It consists of a piece of steel 1½ inches wide by about ¼ inch thick. It is spread out and drawn down thin at one end. The other end has the width reduced, and is formed into a hook.

In comparing the rapidity with which he could handle colonies on Hoffman frames, and those on loose or unspaced frames, a visitor who timed him gave him a record of 1½ to 2 minutes per colony on Hoffman frames, and 3 to 4 minutes on loose-hanging frames. He attributes this difference in results to the fact that the self-spacing frames can be shoved together *en masse*, while the other frames must be placed carefully in position *one at a time*.

That was about my experience when I first began to push this frame into prominence as long ago as 1890—a frame that was then well known, and was some twelve or fifteen years old at the time I began to tell about its merits.

At one out-yard, in 1891, I had about half the colonies on hanging frames, and the other half on the Hoffman. I ran both sets of frames together until I made up my mind that I could save time by transferring all the remaining combs in hanging frames into the Hoffman.

One feature that Mr. Davenport does not touch on is the facility that one has in handling Hoffman frames in groups, three or four at a time. I scarcely ever manipulate a colony on these frames without handling the frames in pairs or trios. I may possibly remove one frame of the division-board; then if I desire to form a nucleus I lift out three frames, leaving them stuck together just as they were in the hive. If I wish to get at the brood I may lift out a pair of frames from the center of the brood nest; scan the brood surface exposed, and as soon as I have satisfied myself I insert the frames in their position. Two shoves with the pry or tool crowd all frames back into their exact position, there being no fingering of individual frames. But this result can not be achieved without a good tool; and the one that Mr. Davenport describes is the one that, according to my experience, is proving most satisfactory, all things considered. Early last fall we intended to list such a tool in our catalog, but we overlooked it; but we hope to have some ready very soon now.

Mr. Davenport seems to favor Hoffman frames with square edges. I tried the frame the first season with such edges; but after I had tried them with a plain V edge I decidedly preferred the latter; but I should like to see reports from those who have recently tested the two side by aide.

Digitized by Google

For there shall arise false Christs and false prophets, and shall show great signs and wonders; insomuch that, if it were possible, they shall deceive the very elect.—MATT. 24:24.

In one sense Christian people ought to feel encouraged just at this present age from the fact that so many are holding, or at least claiming to hold, Christ Jesus as Lord of all. I can very well remember when the idea that Jesus could heal or would heal now as he did in olden time would have been ridiculed, not only by unbelievers but perhaps, also, by a large part of Christian people and church-members. Now not only Christian Science people but even patent-medicine men and venders of humbug apparatus for healing disease claim that they are in line with Bible teaching and divine healing as in olden times. I have called attention to the fact that bad, vicious, evil men succeed in getting money from sick people by making believe they can heal in answer to prayer or similar ways. The world is now flooded with so many claims in this direction that it has brought to my mind vividly the text I have quoted at the head of this talk. "False Christs" and "false prophets"—why, one is literally bewildered by the multitude of them; and the most perplexing feature of the whole business to me is that it seems as if there were gradations *all* along, bridging the way between genuine faith and downright hypocrisy. Our text tells us they shall show "great signs and wonders," and that they shall, if possible, "deceive the very elect." Well, if this is true then I need not feel greatly worried if they do perplex and bewilder my poor self. But, dear friends, I do believe that we may sift the chaff from the wheat, especially if we are standing close by and holding fast to the dear Savior's strong arm. It is with a hope and a prayer that I may pilot some poor soul out of the darkness and into the light that I undertake to talk with you this morning. Let me first submit a letter from a bee-keeper:

Friend Root:—I happen to know something about the case of Henry W. Imler, mentioned in the item on page 237 of GLEANINGS. I was at Zion Home the week he was healed It was Christmas week, 1897. I heard him say twice, publicly, the following, once on Saturday before the guests in the assembly room of Zion Home, and once on Sunday before the congregation in Zion Tabernacle:

"I came to Zion Home Monday morning with smoker's cancer, located on the back part of my jaw, and extending downward into the throat. It was as large around, and as long, as my thumb. I heard the teaching the same day. Dr. Dowie laid hands upon me in the afternoon. In the night I awoke strangling. There was something in my throat. I could not raise it, so I swallowed it. I felt for my cancer. It was gone. It had dropped out while I was sleeping, and I swallowed it. I am also healed of the tobacco habit of 56 years' standing, and of the morphine habit of 35 years' standing. I have no further desire to use them."

Mr. Imler was a merchant in Fremont, Ohio, and appeared to be a bright, resolute man, and appeared to know what he was talking about. Dr. Dowie makes no charges for his services. Mr. Imler was there only one week. He would pay $10 for his board and room. If he paid any thing more he did it of his own free will; so I think Dr. Dowie did not "line his pockets" very deeply.

I think Mr. Fletcher's estimate of not one in ten being healed is very low, when you consider that from 800 to 1000 will arise in an audience in Zion Tabernacle and testify to their healing.

You seem to be under the impression that Dr. Dowie prohibits the use of meats. He does not. You will find meat on his tables every day in the week. He draws the line on swine's flesh. If you read all the reports about him you will not know what to believe. If you want to know the truth about him I would advise you to go to Zion Home and see and hear for yourself.

May the Holy Spirit take away all prejudice, and lead you into all the truth. D. I. WAGAR.

Flat Rock, Mich., March 22.

Amen to your concluding sentence, friend W. Permit me to say to our readers that the above testimony comes from a bee-keeper, and without doubt he is an unbiased witness. It gives us light on the subject in many ways. First, Mr. Imler was a victim, not only of the tobacco habit,* but of the morphine habit also; and if the work at Zion's Tabernacle was the means of delivering him from the power of Satan on these two lines we may all rejoice and praise God for it, even if he did die soon after his return home. It is a thousand times better to die with faith in God than to live in bondage to such evil habits. A man in our town, who had reformed so many times that everybody had lost faith in him, finally took a decided stand and held to his religion. A year or more afterward he was at the point of death, and his friends hesitated to tell him; but instead of being frightened or even disturbed, he said in substance, "May the Lord be praised! If I die now I shall die an honest and temperate man, trusting in Christ Jesus; while if I were permitted to live longer I might after all fill a drunkard's grave." I have been informed from another source that Mr. Imler died the death of a Christian over a year *after* the healing.

Now, in indorsing the above please bear in mind, dear friends, that I do not mean to say Dr. Dowie makes no mistakes. He is human; and I presume that, if we were to undertake to show him up on his worst side, we might make quite a charge against him. But would either you or I stand such a test? If somebody should undertake to write up all of my mistakes and inconsistencies, and ingeniously arrange it, even if he confined himself to facts, it might make a very sad showing. Dr. Dowie has certainly been instrumental in delivering thousands from the dominion of stimulants, evil habits drugs, and the foolish and useless dosing with stuff that does no good, even if it

* Mr. Imler not only stopped the use of tobacco, but, instead of disposing of the stock on hand, so that somebody else might use it, he made a public bonfire of it. See the following, which I clip from a recent number of *Leaves of Healing*, written by the Presbyterian minister of Fremont, O.:

Dr. John Alex Dowie, Chicago, Ill.

DEAR SIR:—Mr. Henry W. Imler, of our city, desires me to write you, and say that on yesterday he burned all the tobacco he had on hand in his store, of which fact I was a witness.

He has thus fulfilled his word of promise to you and to God.

Thus far he stands as a free man, not having touched tobacco or morphine since his return from Chicago.

He says he has no desire for either

He attributes his deliverance to the Lord Jesus Christ, to whom he ascribes the praise.

I have perfect confidence in Bro. Imler, and believe he is finally and forever done with tobacco and morphine, after a bondage of more than forty years. Yours truly,

Fremont, Ohio, Jan. 11, 1898. (Rev.) A. G. LANE.

Digitized by Google

does no harm, and our nation owes him a vote of thanks for so much. I am glad he has succeeded in building that great tabernacle, and in getting that great following.

After the above was written the following came to hand in a private letter:

Dowie's literature has been mailed to me, filled with blasphemy, and condemning all Christians, and all creeds but Dowie's. Two wealthy neighbors of mine went to Chicago and placed themselves under Dowie. He soon ascertained their wealth, and requested that they give the greater part of it to the "cause" (Dowie). This caused the scales to fall from their eyes, and the mask from Dowie.

The above seems to give us a glimpse as to where the great sums of money needed to build Zion Tabernacle came from. Of course, there are different ways of looking at this matter. If those who have been helped by his teachings feel disposed, out of the gratitude of their hearts, to give him aid, surely no one should object; if, however, he is deluding and deceiving, and leading people away from established churches, then he should most certainly be shown up and exposed.

On page 595, Aug. 1, 1898, I made some extracts from a paper published in Little Rock, Ark. Another issue of a recent date is at hand from which I make the following extracts:

Don't forget that the Spirit has fixed my terms for treatments at from one to ten dollars per month for each patient. These treatments are spoken in the silence every day for all manner of sickness of body and mind. I treat for success in business, love, and every thing you desire for health, happiness, and prosperity.

I Am Christian Science; therefore, when Mrs. Eddy talks about Christian Science she is talking about *Me*. Before Mary Baker Eddy was, I Am. See?

Now, friends, one would hardly think it possible people would send money in response to such assertions, especially from a man who admits that he gets drunk when he feels like it, and thanks God for whisky, right out in his journal. Now please read the extracts below, from a kind letter I have just received:

Mr. Root:—I have been thinking, ever since I read your opinion of Mr. T. J. Shelton which appeared in GLEANINGS last summer, that I would write you a few lines giving you my opinion of him. I know you were sincere in what you said about him, and felt it to be your duty to warn people against him; but I know, and have personal evidence, that he can cure some diseases, if not *all*. I procured T. J. Shelton's address, and wrote him just what I wished to be treated for; and the very day he *received* my letter my trouble ceased. I have been, until within the past three years, a missionary Baptist; but since I have been earnestly studying Mental Science the Baptist doctrine looks unreasonable to me, as does all orthodox doctrine—not that I think there aren't good people in all churches—far from that. We *know* from reading your Home Talks, that you are trying to live a true Christian life. I hope this will be read with as kindly feelings as it is written. For fear you may feel insulted, and ridicule me, I sign myself A FRIEND.
Roseville, Ill., Mar. 31.

P. S.—I will send you a little book called "Finding the Christ in Ourselves" I hope you will enjoy reading it.

Now, then, the puzzle is, how can one who writes a letter like the above, and who seems to be downright honest and sincere, believe for a moment that this Shelton, with his intemperance and unblushing audacity, can heal diseases? Nay, further; he heals people hundreds of miles away, and the healing is done (without medicine or any thing else) as soon as he reads the letter describing the malady. When Jesus healed the nobleman's son by simply speaking the word, the people of that day were greatly astonished; but now we are told a wicked man succeeds in getting money for doing something more marvelous, and people believe in him. Before considering this matter further let us take still another case.

Mr. Root:—I mail you a circular, issued by Dr. Carson, of Kansas City; and inclosed with this letter you will find a piece of tissue paper that I shall mention further on. I wish to inquire if you know any thing about Dr. Carson. Why I inquire is, a lady friend of mine has just taken what he calls a month's home treatment by him, and has received no benefit from it. She has been a great sufferer from paralysis for the last three years. She is discouraged, having tried so many things that have not helped her. She said she had tried Electropoise, and was about to try Oxydonor when she heard of Dr. Carson, and concluded to try him first. She could not well make the journey, so she wrote him her condition. He sent what he called a month's home treatment It consisted of 28 pieces of paper like the one inclosed. The instructions were to keep them wrapped in cloth, away from light, until used, and they must not be handled or touched except by the patient. One piece was to be placed between the shoulders each night on retiring, and to be removed in the morning, and burned. I told her she had been doctoring with a lot of humbugs, and to prove it I got out GLEANINGS, that she might read your exposures of Electropoise and Oxydonor. You can imagine how she felt when she found where her hard-earned money had gone. She gave me one of the pieces of vitalized tissue paper to send you. It has not been used; so if it ever contained any healing properties it must retain them yet. I can not help feeling that he belongs to the humbug class. If not, may the Lord prosper him in his wonderful work.
Helix, Cal., Mar. 14. J. B. RATCLIFFE.

You will notice in the above kind letter the writer seems to think it *may* be possible, judging from the concluding sentence, that this man has, after all, some means or power at his command, of giving some sort of virtue to a simple piece of tissue paper, so that it can be sent by mail, together with its medical properties, to the patient. The writer sent me a periodical, or a sort of health journal, published solely to puff this doctor's sanitarium. There was a picture of the doctor himself, and his palatial residence, where he cures people. He certainly looks as if *he* had been well fed; and the pictures of his study, reception-rooms, etc., indicate that the zero weather does not trouble him very much. He is getting rich, or is already rich, and who furnishes the money? Why, they are poor people, such as our friend describes. The lady sent for the Electropoise first; but when she was obliged to admit that it was of no use, and was on the eve of sending for *Oxydonor*, thinking it might be better, somebody advised her to send for the "vitalized" tissue paper. We do not know how much money the doctor had to have for these pieces of paper. The miracles described in the Bible are tame beside the claims of quack doctors of the present day; and the tales of the Arabian Nights are nowhere. Some of the doctors make a great parade, as you may notice in almost any paper you may pick up, of the fact that their medicines are sent absolutely *free of charge*. Some of them say loudly, "Do not send us any money; we do not want it." Ah! but they get it sooner or later, as you may easily find out by biting at their bait.

Digitized by Google

Now, is it the rich people who are making these doctors so wealthy? Is it the millionaires who contribute to help pay for advertisements costing hundreds of dollars that read, "Let us send you three large-sized bottles of our medicine absolutely free of charge?" No, it is *not* the rich people. It is the poor hard-working people of our land — men who toil day by day out on farms, and whose families are often in want — women who spend their lives, or a great part of them, over the wash-tub.

The mania for medicines to make people feel better is positively alarming. Not a week ago one of our customers, in a confidential letter, said his wife was employing *four* different doctors, and taking medicines *nine times a day;* and the consequence was, it took about all the money he could rake and scrape to pay the bills. Now, this is not an isolated case. Our periodicals — agricultural, scientific, and religious — would not be filled with glaring and preposterous advertisements unless there were money in it. One of the best periodicals that comes into my home, and a paper well up with the times, keeps an advertisement running, of glass casters to put under the legs of your bedstead, to prevent the electricity from running away while you are asleep. These glass casters are, of course, sent free of charge, on thirty days' trial. If you do not "feel better" after using them you may send them back, paying postage both ways. If you do feel better, the price is $2.00. Very likely *somebody* will put in right here, "Mr. Root, we have been using those glass casters several months, and we would sooner part with the clock or the cook-stove than with them." Then, somebody will say, "Why, Bro. Root, how do you *know* that they do not do good? How does it come that you are so much wiser than the rest of us?" My dear friend, I do not claim to be wiser in all matters; but I have kept up with the inventions and improvements in electricity for about fifty years. Glass casters would not keep the electricity in the human body any more than they would keep the rain from falling on the roof of your house. Of course, it might be managed by an electrician so as to insulate your bed, and then the bed *might be* charged with electricity. But even if you went to all that trouble and expense it would do no more good than it would to keep the water from falling on your roof. Any student of natural philosophy, even if he is not more than ten years old, should be able to tell you this

Years ago a man came to me and commenced something in this way: "Mr. Root, you claim that there is a queen bee in every hive." I told him I did not claim it, but that I knew it just as well as I knew my own horse was in my own barn. But he went on: "But if you will just listen to me a minute I think I can show you the thing is impossible."

I did not listen at all. I simply went to a hive and showed him the queen; and then he went away thinking, perhaps, I *knew* what I was talking about, after all.

The *greater part* of my readers, I am sure, are satisfied the pieces of tissue paper the doctor sent had neither sense nor science about them. It is all quackery and shameful hypocrisy; the same with Electropoise, the same with T. J. Shelton, who cures you of your troubles as soon as he has read your letter describing your symptoms. And yet all of these people have hosts of followers. I wonder that this whole business of "holding people up" on the street and demanding their money is not at an end. The highwayman's occupation should be wound up, for he can get more money, and do it far easier, by proclaiming himself a "Mental Science" healer, or something of that sort.

There is a great fact staring us in the face; in fact, it ought to stare *everybody* in the face who will read the advertising pages of the periodicals that fill our home papers. The fact is this: People *imagine* they are cured by Electropoise, tissue paper, or even by writing a letter to a low-lived swindler who does not furnish any thing whatever. They are *sure* they have been cured. They have such faith in the oily-tongued venders they give him money out of "gratitude"— at least I have heard they do sometimes. Now, if these people get well without taking *any medicine at all*, is it not probably true that thousands of people are buying medicines, investing their money and their faith, when, if the truth were known, the medicine has nothing whatever to do with the recovery? I am reading the advertisements in every paper I get hold of, and we have a great pile of exchanges, I assure you. I am reading, because I am feeling anxious about our American people. We have all sorts of organizations and schools. I do not know but there are a few whose office it is to teach people better, and to correct the superstition that seems so widespread in regard to the matter of remedies. Our school-teachers, I am sure, are competent to correct these foolish notions. Our family physicians are, as a rule, well aware of what I say. When I appeal to them they laugh about it, and say people prefer to listen to quacks, and send money in response to advertisements, rather than consult their next-door neighbor, who may be a doctor; and finally our ministers of the gospel — God's appointed servants to lead men from earth to heaven—*ought* to be able to advise wisely in regard to remedies. Some of them are doing this; but when I see the Electropoise people flaunting it before the world that they have testimonials from "*a hundred ministers of the gospel*," then I feel like groaning in discouragement.

In the letter from the friend who did not want to sign his name he tells us he used to be a "Baptist;" but after he got "healed" he dropped the church and his religion, and (he tells me further) lost his faith in God. Now, this would be to *me* one test of the genuineness of any of these new things. When the tendency is to lead people away from the church and from the Bible, the thing is surely of the Devil. In our opening text it says that great signs and wonders shall be shown. I am beginning to think that Satan is perhaps granted a little liberty in this direction, that he may by this means win people from godli-

Digitized by Google

ness and righteousness and *temperance*. Why, dear friends, just think of it. Suppose a physician who treated you and won your gratitude by giving you relief from pain should say there was a good deal of prejudice against whisky. Suppose he should add, "I get drunk when I feel like it; I thank God for whisky; it has been my true and faithful friend for twenty years." If you had faith in him you would begin to try a little whisky yourself; and I hardly need add you would stop going to church, and quit reading your Bible. Let me ask our nameless friend who wrote me that kind letter how he reconciles the above expressions from T. J. Shelton — expressions that are right out in open print — with the kind words he has been saying about him; and yet this Shelton has been working hard to make it appear he is a good man. Why, what are we coming to when the prince of darkness walks right out in broad daylight, and tries to make it appear that he is spreading the gospel of Jesus Christ?

I do not find Electropoise or Oxydonor advertised *now* in any religious periodical. We find it, however, right along in many of our popular magazines. When I undertake to remonstrate with these magazines, the editors or the managers of the advertising departments seem astonished. If they do not say so in word they do in action, "Why, these men pay spot cash for their advertising space. Why should we reject their advertising, or why are we under any obligation to inquire whether the machine is scientific or not?" We have, however, quite a number of periodicals that refuse to receive medical advertisements of any kind. Furthermore, quite a few absolutely refuse to receive any advertisement if they have any reason to think there is any thing wrong or injurious about it in any shape or manner. Quite often my friends say to me, "Mr. Root, why do you concern yourself so much about these things? If people wish to be humbugged and swindled they will be in spite of you." But I tell you I can not be quiet, or rest easy, while this craze for robbing sick people continues to go on and flourish. If there is anybody in the world who should have careful, considerate, and honest treatment, it is the sick and suffering. If these land pirates wish to rob people who are strong and well, and have the money to spare, all right — let them go on. It makes my blood boil to see these swindles pushed among people who have been unfortunate, and who, perhaps, through the force of circumstances, have been kept in ignorance of the wiles and schemes of unprincipled men. Just a few days ago something that looked like a catalog was placed among our mail, addressed to Huber Root, our fifteen-year-old boy. He is a great reader, but his father almost always knows *what* the boy reads. This pamphlet was marked on the wrapper, "X-Rays" As Huber is reading every thing on electricity, I thought it was probably something relating to some new apparatus; but notwithstanding, I concluded I would slip it out of the wrapper. What do you think I found under that innocent-looking guise, X-Rays? Why, it was one of the vilest medical advertisements that I ever got hold of. I am going to put in a plea to have the department exclude it from the mails. It was about as bad a thing as I can imagine, and yet they called themselves "great doctors," and tried to make it appear they were *protecting* the young. Now, these villains are getting the names of schoolboys, and mailing them these pamphlets. Dear parents, are *you* in the habit of looking after what is sent to your children through the mails? and have your children been so brought up that they are willing (and glad) to have papa or mamma either look over the books and papers they read? Our prisons, our infirmaries, our lunatic and idiotic asylums, are *already* sufficiently populous. If you wish to make sure that no inmate of your own home shall ever get into these places, look after this matter. Look out for the medicine-venders, and be sure you are not deceived by some *wolf* that manages to get into your homes under the guise of *sheep's clothing*.

REPORT OF THE OHIO EXPERIMENT STATION ON NEW VARIETIES OF POTATOES DURING 1898.

We take the following from a recent bulletin:

In 1897 the yield was uncommonly good, because both the weather and the soil were favorable, while in 1898 the conditions were quite the opposite, and in consequence the crop was only about one-third that of the previous year, and in some cases the difference was still greater.

Bovee.—One of the best early white sorts that have been grown here for three years or more. The yield in 1897 was 350 bushels per acre, and the average for the two seasons was 236 bushels Its record has been good in previous seasons. It is about as early as Early Ohio, and far more prolific.

Early Trumbull.—An excellent early white variety, which has been on trial two seasons. It has the distinction of standing first in point of yield of any early variety, and falls but little below the best of the late sorts. on an average for two seasons. In 1897 the yield was 462 bushels per acre, and the average for two years was 298 bushels. It is fairly a rival of Bovee.

Enormous.—This ranks first in prolificacy of all varieties tested in the last two years. In 1897 the yield was at the rate of 508 bushels per acre, and the average for two seasons was 319 bushels. The tubers are white, of medium length, and not inclined to grow prongy. Season medium to late.

The same bulletin says further:

SEED POTATOES: WHERE TO GET THEM, HOW TO CARE FOR THEM UNTIL PLANTING-TIME, AND WHEN TO PLANT.

The importance of good, sound, unsprouted potatoes for seed is a matter concerning which there is no difference of opinion; but how to secure such seed is a question upon which all are not agreed.

Some would send north each year for new stock, while others believe that the southern second-crop potatoes are superior to other seed, because of the fact that they do not sprout so quickly in the spring.

It is sufficient to say, without going into details, that the Ohio Experiment Station has found that the locality where the seed was grown is a matter of less importance than the manner in which the seed is kept, which is equivalent to saying that the condition of the seed before planting determines what the crop is to be, far more than does the latitude where the seed was

Digitized by Google

produced. When equally well preserved from sprouting, our own seed potatoes have given as good results as those from either north or south. Cold storage Ohio seed potatoes have given as good crops as those from Maine or North Carolina.

Cold storage is not convenient for all, however, and means must be adopted to obviate the necessity of it. The easiest plan is to grow seed potatoes late in the season by planting about the first of July.

To carry out this plan, preparations need to be begun as early as the first of May. Ordinarily, potatoes will not keep in condition for planting until the first of July; but if they are taken from the cellar before they have begun to sprout, or when the sprouts are just starting, and spread out on the barn floor, or loft, or some place where they will receive a little light, they will throw out short stubby, green sprouts, about half an inch in length, and then remain in that condition for months.

The potatoes must be only one layer deep, and, preferably, seed end up. All of the eyes will not throw out sprouts; and in cutting, the pieces should be larger than for spring planting.

When planted, these potatoes will come up quickly and make their growth in a short time, and almost surely give a good crop.

In 1897 the Bovee gave, with the treatment above described, at the Station, 200 bushels per acre, and in 1898 the Enormous yielded 300 bushels per acre, which was better than the early crop. Late varieties do as well by this method of treatment as early sorts; but usually the yield is less than from early planting.

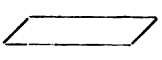
The object of this method of growing potatoes is to secure seed that will keep in a common cellar without sprouting, and for this purpose it is far superior to seed grown in the ordinary manner.

It may be said, also, that potatoes grown from sprouted seed are less scabby than those grown from seed taken from the cellar and planted at once. Late-planted potatoes are less liable to blight than early-planted, although not exempt from that disease.

Permit me to add that all the points made above agree exactly with my own experience and experiments. And now, friends, if our station, which is located on rather poor clay soil, can make such yields as those mentioned above, what in the world is the reason you and I can not do the same if we avail ourselves of information that is ours if we just reach out and take hold of it?

COW PEAS; HOW TO MAKE A STACK SO THE PEAS WILL CURE AND KEEP SAFELY.

I wish to add something to what Abbott L. Swinson says on page 240 in regard to making hay from cow peas. The speckled (or Whippoorwill) variety has the peculiarity of maturing most of its pods before the leaves begin to drop, and then it has a more erect habit; hence its great popularity for making hay. The curing is best done in open stacks made around poles set in the ground, and prepared thus: Get a piece of scantling 16 or 18 ft. long and 3x3 to 4x4. Cut some pieces from stuff 3x1, and from 18 to 24 in. long, in this shape—that is, sawn across at an angle. Now nail these pieces on the pole about a foot apart from the ground, going round in a spiral, and leaving the outer ends higher than the center. If the vines be stacked around these, either when just cut or afterward, they will dry out, and at the same time be well protected from rain.



Paris, Tenn. W. H. GREER.

As I understand it, the vines are to be hung on these projecting sharp points in such a way that the roots are up and the tops hang down. In this way the leaves will naturally assume the best shape to shed rain, and the pole and the projecting sticks will let air enough through the stack so there is no danger of heating. It strikes me that such an apparatus would be an excellent thing to stack common beans when grown for seed, especially when we have damp rainy weather making it difficult to dry them properly to thrash.

I am very glad to see the cow pea get a fair share of attention in GLEANINGS. I don't think it could properly be discussed among the bee and honey interests, but in the department devoted to *home* interests I think it is very appropriate. The cow peas were one of the great factors in enabling me to have a home. Some years ago I came by some land that was considered worthless, and it was so unproductive that it was abandoned. Ordinary grain and grass absolutely refused to grow on it, and the only plant I could start on it was the cow pea. After considerable work I prepared a shallow seed bed and applied a little dissolved S. C. rock and muriate of potash, about 200 lbs of the former and 25 lbs. of the latter to the acre at a cost of $1.50 per acre, not including the labor. A large mass of vegetation developed on that field, all of which I turned under and started that soil on a career of usefulness from which I have annually taken a crop ever since, and paaying crops too, as, for example, two years ago 320 bushels of wheat from the 11 acres, and last year about 28 tons of the finest clover hay, red and alsike mixed, from the same field. Only after seeing what the cow pea will do for our worn or apparently worn-out soil can we begin to appreciate its value.

As a soiling crop, as a silage crop, as a hay crop, it is grand; but as a soil-renovating crop it stands second to but one, and has the advantage of being able to thrive on such barren soil where its peer, red clover, can not grow.

If any of the readers of GLEANINGS have light worn-out soil that will not take kindly to clover, and fail to produce profitable crops, feed it one good crop of cow peas, stimulate lightly with potash and phosphoric acid, and, my word for it, you will be astonished at the future results. Don't be afraid of being too far north, as the cow pea will grow during the warm season, but may not ripen seed. It will not thrive on wet, cold, undrained soil. L. W. LIGHTY.

East Berlin, Pa.

ENGLISH RAPE AS A HONEY-PLANT.

What do you know about English rape for bee forage? I came across some on my second trip to Michigan last fall that was showing well. I called on Dr. L. N. Higbee, near Elsie, an intelligent bee-keeper having about 60 colonies of bees. He had about ½ acre in bloom; and although the weather was quite cool the bees were pouring in from it in a way that reminded me of the basswood flow earlier in the season. They were bringing in mostly pollen, which was an unusual sight so late in the season (October). Dr. H. reported a flow of honey in August, a few years ago, from 4 acres, that to me was almost past belief.

East Townsend, O. H. R. BOARDMAN.

We are glad to get a favorable report from rape as a honey-plant, once more. Some years ago there was considerable of a stir about it. Some very large yields were reported, especially in localities where the seed was largely grown for oil. The seed was advertised in the bee-journals, and, in fact, we have it in our seed list (*English* rape is worth 20 cts. per pound) among the honey-plants. There seem to be several varieties, and one kind that would winter over in mild climates. This latter was used largely for feed, and within a few years past the Dwarf Essex rape has eclipsed every other variety as a feed for sheep. This, however, is seldom grown as a honey-plant. Of course, where it is managed for growing the seed it would yield honey; but I have not yet learned where the seed of this latter variety is grown — probably somewhere in the South. Who can tell us more about it? And, friend B., will you please tell us whether the patches you mention were grown for any other purpose than as a honey-plant? And, by the way, old friend, I am glad to know you are getting enjoyment, and something profitable also, from your wheelrides. While reading your account of them I felt a great desire to go along with you, if I knew when you are going to start out again on a ride. By the

Digitized by Google

way, why can't we have an excursion planned specially for bee-keepers who ride wheels?

SWEET CLOVER IN GERMANY.

Friend A. I.:—I send you a picture out of *Centralblatt* to show you how sweet clover grows in the German language. It was windy when the picture was taken, so the plants don't show as well as they might; but Herr Reepen says the average height of the stalks back of the man and boy is 9 ft. 10 inches, and the one stalk that Herr Wegener is holding in his hand is 10 ft. 8 in. high.

But what I wanted you more particularly to notice is the growth of the potatoes this side the man and boy. Those in the foreground, as you see, have made a poor growth, while the three rows next the sweet clover have grown most luxuriantly. And yet they were planted with the same seed and at the same time. Herr Reepen thinks the difference must come from the nitrogen gathered by the sweet clover. It seems as if there must have been some other difference, perhaps accidental, but still it may be worth while to make some experiment to see whether any thing like the same difference might be made in this country. I commend the case to your consideration.

Marengo, Ill. C. C. MILLER.

I should be exceedingly glad to submit to our readers the picture sent us. It looks to me as though the ranker and stronger growth of the potatoes close up to the sweet clover may be accounted for partly by the shade. If the soil was sandy or gravelly, the sun was likely too hot for them out in the open field; and this great mass of sweet clover would not only shade the potatoes, but if there was an abundance of rain it might also help to keep them damp longer than those standing out in the full blaze of the sun. I wish our German people would tell us through Dr. Miller, or in some other way, how much sweet clover is worth for feeding stock in the "Fatherland."

MANURIAL VALUE OF BEES, ETC.

Having kept bees for five years at my present location I have been led to notice the effect of dead bees as a benefit to vegetation. For instance, in front of my old hives, where for five seasons dead bees have accumulated, the grass grows with a luxuriance not noted anywhere else. Clean out a hive where bees have died, and dump the mass of dead bees in a spot, and note the result of increased fertility. My theory is this: My apiary adjoins the garden; and daily, during the working season, I find dead and disabled workers lying about on the ground. Now, a few bees every day dropped on the land is a small thing; yet in a few seasons it amounts to quite a large amount. Agricultural specialists agree that animal matter (decomposed) is a fine fertilizer; hence I concluded that bees in a few years are worth something to their owners as a result of the matter added to the ground from dead bees. I shall clean up several hives this season, and experiment by scattering the "corpses" in the drill along with the seed, side by side with other fertilizers, and report results.

Another thing, my chickens, when about six weeks old, eat drones, and seem to thrive on them—a "lean-meat diet," you might call it. What surprises me is the instinct that teaches young chicks to eat drones and let workers alone. They beat drone-traps badly.

Murfreesboro, Tenn. CHIP HENDERSON.

I have often thought, friend H., that there must be considerable fertility in the bees thrown out of a hive after they have died in wintering; and even if they do not die in wintering, if it is true that a worker-bee lasts only about six weeks, there is quite a lot of carcasses to go somewhere. Our plan of having a Concord grape-vine to shade each hive utilizes this debris with very little labor. We have beautiful grapes by the ton year after year, with no expense except to prune the vines and tie them up once a year. They afford shade to the hives, and the bees furnish all the fertility needed.

GROWING STRAWBERRIES AND CORN TOGETHER.

I have given the subject a thorough trial, and have abandoned the system as a delusion and a snare. My first trial was exactly the same as Mr. Chapin's. Corn was planted about 3½ feet each way in hills, and one strawberry-plant set out between hills of corn in the row. The variety was Lenig's White; and the season being a good one I got a fair crop the following season. Subsequent trials proved comparative failures. I have tried growing early sweet corn between every other row of strawberries, and then again between every fourth and sixth row; and the further apart the corn was planted, the more the system condemned itself. When the strawberries had the field to themselves there was a good stand of strong vines; but always, without exception, the strawberry-rows adjoining the corn were feeble and stunted, showing that the corn had taken the larger share of plant-food and moisture. Our land being rich and high-priced (we live in the city) we have tried to get all we can out of it. I have tried beans, cabbage, beets, and onions, among my strawberries, and have now settled down to early cabbage, early beets, and onions, as being the only crops that can be grown among strawberry-plants without injury to the succeeding crop. These crops come off the ground early, and leave the moisture for the strawberry-plants in the fall, when it is most needed. Corn, on the contrary, needs all the season for maturing; and with its long feeding roots reaching out every way for plant food and water, the poor strawberry-plant has no show whatever. If our old friend A. I. Root will plant one row of strawberry-plants alongside a row of corn he will get the best object-lesson of how a strong plant can rob a weaker one.

I am entirely agreed with you as to the value of cornstalks for a mulching for strawberries; but I want them grown by themselves, not nearer than 20 feet of the strawberries. Cornstalks between the strawberry-rows, and 2 inches of clean rye straw over all, is my ideal of a perfect mulch. H. E. MCGREGOR.

Appleton, Wis.

Friend Root:—In regard to what you say in March 1st GLEANINGS about planting corn with strawberries to shade them, I most emphatically say, *don't*. Corn is such a rank grower, especially on ground good enough for strawberries, that the roots would absorb more moisture than the shade of the stalks would prevent evaporating. I have tried it, and *know*.

Belleville, Ill. E. T. FLANAGAN.

THE CRAIG POTATO; A FAVORABLE REPORT FROM IT.

I like the Craig potato for late the best of any variety I have yet tried, and I have tried a good many of them. I have been able to get a fair crop of them when (because of dry weather) many other varieties failed entirely. I started with 3 lbs., and in four seasons the increase amounted to between 600 and 700 bushels, or an average increase of over 50 fold; and that too, without any fertilizers or special culture.

Mitchellville, Ia., Mar. 26. G. S. FOX.

The above is exactly the way the Craig behaves on our grounds year after year; and it is a mystery to me why so many should fail in making a success of it. I suppose we shall have to conclude that, like many other things in the vegetable kingdom, it succeeds nicely in some localities and not in others.

THE NEW SPRAY-PUMP FOR KEEPING FLIES OFF HORSES AND CATTLE.

On page 288 you ask for information regarding the use of kerosene spray on cattle, to keep off flies. Last year, seeing on sale at one of our stores the Acme atomizer, and thinking it would be handy for me to spray my hand-fertilized potatoes, I bought one and found it very convenient for that purpose. By keeping it loaded I could go over my few short rows every morning to make sure the bugs would not destroy the

Digitized by Google

buds or blossoms before the seed-balls were set. Of course, for this I used Paris green I also used the atomizer with *clear* kerosene oil for spraying cabbage, with good results. One day, noticing that the flies were tormenting my calves, I thought to try the kerosene spray on them. I found it worked charmingly, as no flies would remain on the calves to annoy them, after which we sprayed them every morning.

The men, noticing the good effect of the spray on the calves, tried it on the cows just before milking, with equally good results. I found it would last all day on the calves if one-fourth sweet or lard oil was added to the kerosene. I am using the sprayer with clear kerosene on my orchard, to kill the oyster-shell bark-lice that are now hatching. This year I shall buy an atomizer for each kind of mixture, to avoid the trouble of so many changes. They are so cheap one can afford to have all he wants. A. E. Manum.

Bristol, Vt., Apr. 5.

I used last season a sprayer something like the Faultless, but I had to blow into the tube. I put kerosene oil into it, and sprayed my cow before I commenced to milk, when flies were so troublesome. Every fly is dead instanter. I know of several who used them, and they say they are just grand for that. It takes but the least bit of oil each time. Just fill it part full, and have it handy where you milk. It will save time, possibly some strong language, and the milk-pails will be better filled. It is like oil on the troubled waters. A. A. Harrison.

McLane, Pa., Jan. 25.

My impression is, at the present writing, that the little low-priced machines are going to be more used for the above purpose than for destroying potato-bugs. Flies on domestic farm animals not only annoy the animals themselves as well as the driver, but they actually cost thousands of dollars in hard cash, sometimes resulting in accidents that end in the loss of life. If one of these cheap sprayers with a little common coal oil will do the work, thousands can afford to keep them for this purpose and nothing else, even if the application is to be made every morning before starting out. The cheap tin ones will be all right for kerosene.

THE WEATHER ALMANACS AND THE ZERO WEATHER IN FEBRUARY.

On page 195, March 1, I suggested that here was a chance for the almanac-makers to immortalize themselves, if they had any glimpse ahead of the terrible cold spell in February. There has been just a faint attempt to make out that "one of the prophets" did tell us what was coming in February. Of course, there is a good deal said about storms and blizzards; but the prediction would fit any February very well. Had the prediction been that the middle of February would be all over the United States more zero weather than had been known for years, and, in fact, that zero had gone down into the Southern States, where it was seldom if ever known before, then we might have a little faith, and so on through the rest of the winter months. If any record was made last fall to the effect that December would be unusually severe, especially during the fore part, all over the land, and that January and March would change places, and that the middle of February would be remembered for years to come, from Canada to Florida, then we might have had some reason to believe in "inspiration" in regard to the weather. The severe period in February was somewhere from the 8th to the 16th. Below is a clipping from the most popular weather almanac concerning this period:

A marked storm period runs from the 8th to the 12th, in which a Venus equinox will be at the center of its power. Very warm days will be followed by rain and thunder, turning to snow, blizzards, and a cold wave. About the 14th to 16th, cold will moderate, and more storms of rain and snow will occur, followed again by change to much colder.

Now, wouldn't the above fit very well for almost any February? and does it hit at all what actually occurred all over the United States last February? The closing prediction for the month is, "Watch your stock; many will perish;" and because many did perish, we are called upon to note the wonderful accuracy, etc. But this same thing has been said in regard to stock for every February and March for years past; and it is not *at all* wonderful that it came true every time.

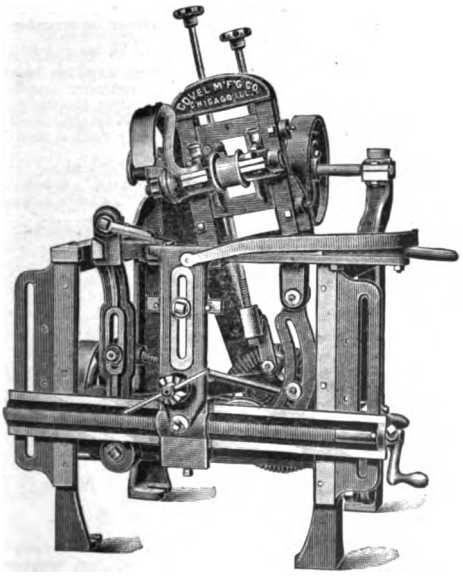
SHARPENING SAWS BY MACHINERY; THE INERTIA OF HUMANITY.

Every progressive man and woman has felt that peculiar pain that comes to one who is trying to help people who will not be helped. We find this not only in spiritual and moral things, but all through life, and even into the mechanical world. More than 20 years ago I was fully satisfied that sharpening saws by hand was a clumsy and wasteful way of doing the work. It was when I first began to make bee-hives; and circular saws sharpened *just right* were beginning to be much in demand. I got an emery wheel made specially for the work, and rigged up a machine of wood, and this machine sharpened the saw without the use of any file whatever, so that it did prettier work, and did the cutting with less power than any saw I had ever before used. The reason was, the teeth were exactly alike, and ground at just the right angle, with the right amount of "throat" to let the dust out, etc. I got my ideas of how it should be done from Disston's book on saw-filing. My machine was crude, and soon got out of adjustment; and after I had spent considerable time I decided that a *better* machine was needed, made all of metal.

Soon afterward, at the Centennial Exposition, at Philadelphia, I saw a machine made for that very purpose; so you see my first experiments in this line were about 23 years ago. Some time afterward we purchased one of these machines, but it did not work satisfactorily. The inventors explained that they had gotten out a better one, and we swapped, paying the difference. But all these machines seemed to have defects. I sometimes thought *I* could make any of them work, because my heart was in it; but different men in our saw-filing department sooner or later dropped the machine, and went back to hand work. In spite of all I could say or do (or at least it seemed so to me) our men would always persist in cutting down the outside (or top) of the saw-tooth, instead of doing their filing on the *under* side. If the regular saw-filer was sick or away, the new man was sure to file down the points of the teeth the first thing he did. Now, the *point* of the tooth is what does the work. If it needs to be made sharper, cut away the steel on the under side, but *never*

Digitized by Google

on top. The people I talked to assented to the theory; but the first time I came along they were bearing down right on the top of the tooth again, and cutting away the point, wasting the saw, wasting their strength, and not having a good cutting tooth when they were done. Well, to day my heart has been made happy by seeing a saw sharpened on a new machine, without the aid of any file at all, and the saw cuts just as nicely as the one I worked with *23 years ago*, sharpened on my home-made wooden machine. Saws sharpened by machinery have their teeth exactly alike; and if you once set the machine so it makes one tooth of the proper shape and pitch, all the other teeth will be just like it, and you can sharpen a hundred or a thousand, and have each and every one cut just as well as the first one This new automatic machine cost us about $75, and was made by the Covell Mfg. Co., Chicago. I have always maintained, and still maintain, that, even if one insists on filing saws by hand, he needs a machine to do the gumming and truing-up. Just take a look at a lot of saws that have been sharpened with files a dozen times or more, and then compare them with one that has been through the machine. But even now I am afraid that, in a few days, I shall hear somebody say the machine is "no good," and hear that they have gone back to bungling hand work.



AUTOMATIC MACHINE FOR FILING SMALL CIRCULAR SAWS.

The same apparatus, with a little modification, trues up and sharpens band-saws in the same way; and as it is a considerable task to sharpen a long band-saw, such a machine is a wonderful saver of hand work. We now have two of these machines in operation. One saw-filer can superintend both of them, and be doing other work besides. The band-saw will, in fact, take care of itself for almost an hour at a time, and do nicer work than any man ever did by hand with the file—at least that is my opinion. A one-horse-power electric motor operates both machines.

Our Roll of Honor.

Dear Brother Root:—I notice, in looking over the Honor Roll, that you give a place to those who have taken GLEANINGS since 1880 and thereabouts. When the Honor Roll was first started, I did not consider that those subscribing for so short a time would be counted among the veterans. But if they are, I feel that I am entitled to a place, having been a subscriber since 1879. I might say that I have all the copies since that date in my possession now. I have written you from time to time telling you of the help GLEANINGS has been to me. It would be hard to estimate how much benefit I have derived from your advice and counsel in the Home Papers. We had the pleasure of a visit from you at our home a short time ago, and we hope that you will come to Toronto soon again, when we shall be much pleased to have you stay with us.

I have been much interested in your travels, and intend sending you a sketch of a trip we had to Muskoka last summer. We know from what you have said in your talks about health, soft water, etc., that Muskoka would be just the place for you. We believe you would enjoy it and that it would do you good. We traveled about two hundred miles on our bicycles, and about the same distance by canoe up the lakes and rivers, camping out all the time. We had plenty of fresh fish, backberries, raspberries, huckleberries, and the very best pure soft water. We were away a month, and the total cost for three of us did not exceed $50.00 EDWIN GRAINGER.

Toronto, March 13, 1899.

To be sure, I should enjoy it, friend G.; and whenever you get ready for another trip of that kind, just send me word and I will try hard to be one of the crowd. Well do I remember my pleasant but altogether too brief visit at your place. I was on the beefsteak diet then; but, may the Lord be praised, I think I could eat berries and fruit now with almost any of you.

My dear old Friend:—Please have my subscription extended. That's because I began with Vol. I. No. 1 of GLEANINGS. I think it began not so very long after the first visit I made to you. That was not long after you had had a fire, in 1870, and had your jeweler shop and dwelling all under one roof. Other company was there, somewhat crowding the sleeping facilities; you and I slept together, and you kept me awake detailing a plan that was in your head for putting a hive under each hard-maple tree, tapping the tree, and having the sap run directly into the hive for the benefit of the bees. You didn't manufacture smokers then, and I showed you how to smoke bees with a pan of hot coals. You liked the plan, and as soon as I was out of sight you tried it and burned up a hive, or tried to. I think I've slept with you a number of times since, and was distinctly the gainer on at least two separate occasions, when you absent-mindedly put your nightcap in my overcoat pocket instead of your own. I never lost any thing by sleeping with you I always put my Waterbury under my pillow. Please don't forget to have my subscription extended.

Marengo, Ill., March 23. C. C. MILLER.

I have been a continuous subscriber to GLEANINGS for about 20 years. I have preserved all of the volumes, but have not taken time to look up just what year my time began. I became interested in bees about 1879. My bees have wintered fairly well up to this time on their summer stands. JOHN S. SNEARLY.

Williamsville, N. Y., March 20.

I commenced taking GLEANINGS in the 70's, and have continually perused its contents ever since with interest, pleasure, and profit: and I know I am a better Christian to-day, and love the Bible better for the truths taught and practiced in GLEANINGS. Hoping we shall meet in the city of gold, I am your brother,

DuQuoin, Ill., March 9. F. H. KENNEDY.

Digitized by Google

Forewarned is Forearmed.

DO NOT WAIT until the last moment to order your supplies.

YOU MAY BE DISAPPOINTED by delay in shipment and lose a portion of the honey harvest.

SAVE MONEY AND GAIN HONEY by sending us your estimate NOW.

We are offering SPECIAL INDUCEMENTS FOR EARLY ORDERS.

Our 1899 CATALOG FREE.

G. B. Lewis Co.,
Watertown, Wis.

SPECIAL AGENTS.
E. T. Abbott, St. Joseph, Mo.
L. C. Woodman, Grand Rapids, Mich.

Bee Supplies.

Root's Goods at Root's Prices.

POUDER'S HONEY-JARS, and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

WALTER S. POUDER,
512 Massachusetts Ave., Indianapolis, Ind.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

CHAS. ISRAEL & BRO.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

SOMETHING INTERESTING.

You would not think it just the proper thing to select a farm wagon for park driving, and it would be equally inappropriate to use a trotting wagon for knocking about over rough country roads with a heavy load.

We believe in the "eternal fitness of things," so our designers and mechanical experts have produced a special light roadster, (styles 64 65), adapted for the use of discriminating riders who want a mount affording the maximum of satisfaction and safety with a minimum of weight.

This bicycle weighs 21-22 lbs., depending on equipment, and every fraction of an ounce that does not make for safety, has been taken off.

Tire equipment is our new Burwell detachable—the nearest approach to perfection in bicycle tires; more resilient than others; perfectly dependable; you can repair it yourself; no tools required.

The bearings are Mr. Burwell's new Ball and Roller system—dust-proof and self-oiling; under test show a great saving of power and are practically indestructible.

Style 65 in this model is especially recommended for delicate women who tire of riding a heavy wheel.

We would like to tell you more about these and other Cleveland—recognized as ***Standard for Excellence*** the world over. Send for catalog 14

H. A. LOZIER & CO., Mfrs.,
CLEVELAND, OHIO, U. S. A.

BRANCH HOUSES—New York, 337 Broadway; Philadelphia, 830 Arch St.; Chicago, 307-309 Wabash Ave.; Boston, 396 Boylston St.; Buffalo, 615 Main St.; Detroit, 244 Griswold St.; San Francisco, 304-306 McAllister St.; Toronto Junction, Ont.; London W., 24 Orchard St., Oxford St.; Paris, 6 Place de la Madeleine; Hamburg, Neuerwall 36.

CLEVELAND BICYCLES

Digitized by Google

Since the advertisement of the *Modern Farmer and Busy Bee* was printed on the cover of this journal, we have received notice from Mr. Abbott that he had severed his connection with that paper, the reasons for which are stated in another advertisement in this issue (page 331). Mr. Abbott, it seems, does not believe in the principle of accepting questionable advertising; and if we understand it he preferred to sacrifice his business relations rather than his principles. All honor to Mr. Abbott.

BEE-KEEPING FOR BEGINNERS.

The above is the title of a book of over 100 pages, by Dr. J. P. H. Brown, of Augusta, Ga. We have eleven copies of this on hand. The regular price is 50 cts. To close them out we offer them at 35 cts. postpaid.

RECORD TIGHT SEAL-COVER PAILS.

Owing to heavy advances in tin plate we are obliged to advance the price of Record's tight seal-cover pails, as listed on page 25 of our catalog, $1.00 per 100 right through for all sizes, with a similar advance for smaller quantities. All other honey-packages, for the present at least, remain at present prices.

PLENTY OF NO. 2 SECTIONS.

We reported a month ago that we were short of No. 2 grade of sections in all sizes and styles. We have been filling some very heavy orders since, which took No. 1 grade almost exclusively, and we have accumulated a surplus of No. 2 in most widths and styles, so that we can now supply this grade, with very few exceptions. The one width we are still short of is 4¼ by 7 to foot, but we have plenty of all other common widths in two and four beeway and plain.

THIN-BASE FOUNDATION.

In order to encourage a wider introduction of the new thin-base foundation we decided to reduce the price to 75 cts. per pound, retail. There is nothing in it to us at this price till we have increased facilities for producing it more cheaply; but it is really cheaper to use than ordinary thin or extra thin foundation at so reasonable a price. Our facilities for making it are limited, and we may not be able to supply the demand a little later. For the present we can furnish all that is required. Order while you can get it.

SECTIONS 500 IN A PACKAGE.

It has been our custom for many years back to put 1000 sections in a package unless ordered in packages of 500 each. The 500 package is so much in demand, especially among dealers and agents, and it was so much of an annoyance to keep both sizes of package in the various sizes and widths, that we have adopted the 500 package as our standard size hereafter; and all sections from now on will be so boxed. Of course, we have a stock of some sizes in 1000 boxes which will not be used up for some time, but these will gradually work off.

BUSINESS AT THIS DATE.

The very late spring in almost all sections of the country, on the top of heavy winter losses, has had the effect of greatly retarding orders, so that we are now filling almost all orders promptly in from one day to a week after receiving them. Our accumulation of carload orders is worked down to five or six, the number we have been shipping each week for some time back. We are very much gratified to be in position to handle orders promptly instead of being hopelessly behind, as we were a year ago at this time.

We are now running on ten hours time except the section machinery, which we continue to run eleven hours while we are completing some heavy orders. Send on your orders and let us show you how promptly we can serve you.

Both our Syracuse and Mechanic Falls branches have had a much heavier trade so far this season than any heretofore, while we have shipped 25 more carloads than we had up to the same date last year, although we have not shipped so much in less than carload orders as last year.

Special Notices by A. I. Root.

EARLY CABBAGE-PLANTS; H. A. MARCH'S STRAIN OF EXTRA-EARLY JERSEY WAKEFIELD.

We have a splendid lot of them that will be ready to send out by the time this reaches you, or a little later. Prices: 10, 5 cts.; 100, 40 cts.; 1000, $3.00. If wanted by mail, 5 cts. for 10, 25 cts. per 100 extra. These prices may be a little higher than those offered elsewhere; but ours are all transplanted, well rooted, and every plant is from the celebrated seed grown by H. A. March.

SEED POTATOES FOR RAISING PLANTS, AND SWEET-POTATO PLANTS.

In our last I must have been "rattled," perhaps from the frosts and blizzards, when I said sweet potatoes for bedding would be ready in May. It should have been *April*, and the plants will be ready in May. We are now ready to ship potatoes by the first mail, express, or freight, and expect to have plants ready by the fore part of May. We have settled down on only two varieties—the old standard Yellow Jersey and the new vineless General Grant. Please notice that everybody who buys 50 cts. worth or more of either potatoes or plants can have the little book, "Forty Years' Experience with Sweet Potatoes."

SEED POTATOES AT THE PRESENT DATE.

Seconds are practically all gone except Freeman and New Queen, and firsts are practically all gone except Triumph, Freeman, New Queen, Monroe Seedling, Rural New-Yorker, Carman Nos 1 and 3, State of Maine, Manum's Enormous. All the above will be sold at catalog prices. If you haven't a catalog, drop us a postal. Our Early Ohio was one of the first to be sold out, as usual; but we succeeded in finding a few that belonged to a man who bought the seed of us last season, which we offer at the regular price while they last. By the way, notwithstanding the multitude of varieties of new potatoes it looks as if *more* people *still* prefer the Early Ohio than any other early potato known. Wouldn't it be a good idea for somebody to have a good lot on hand, say when another spring opens?

SIR WALTER RALEIGH SEED POTATOES.

We have about 20 bushels of these that we can ship promptly at $1.25 per bushel or $3.50 per barrel. They are something like the Rural New-Yorker and the Carmans, but are considered rather handsomer, and better yielders, than any of the above.

LITTLE BASSWOOD-TREES.

Now is the time for putting them out, and we have a nice stock which we can ship promptly by mail at the following prices: One foot and under, 5 cts.; 10 trees, 30 cts.; 100, $2.00. The same by mail, postpaid, one tree, 8 cts.; 10, 35 cts.; 100, $2.25. By express not prepaid, one to five feet, 10 cts. each; 10, 75 cts.; 100, $5.00. Of course, it will take some time to grow trees that will yield a very large amount of honey. But the basswood is a very rapid grower. It is a most beautiful shade-tree; and if you do not get honey from them, very likely your children will. The largest yield I have ever known from a single colony during a single day was during basswood time, and I believe that is the universal experience wherever basswood grows. As it is being so rapidly taken from the forests for timber and for different purposes, bee-keepers should look to it that more trees are being planted.

We have basswood seed for sale; but as it is a difficult to get it to grow I would advise people generally to buy the little trees. These are almost sure, with any sort of chance, while it takes an experienced man to manage the seed so as to get any reasonable amount of them to grow.

Advertisers' Department of Short Write-ups.

The Storrs & Harrison Co., Painesville, O.

We are constantly receiving inquiries as to where our friends had better buy nursery stock, ornamental shrubs, etc. A year ago last fall I paid a visit to Storrs & Harrison, and wrote them up, as you may remember. The way they do things with their systematized business and trained help, there is very little chance for mistake. Another thing, their prices are very much lower than what tree-peddlers often

Digitized by Google

charge for spurious or doubtful stock. Our experiment station has recently warned the public against paying 50 cents apiece for a new-fangled peach-tree that is proof against the yellows, and will not winter-kill, etc. Now, Storrs & Harrison have the finest-looking peach-trees I ever saw in my life, and almost any standard variety, including the very latest, for only about 10 cents apiece. We have made purchases of them more or less every year for about 20 years past, and when our stuff comes to bearing it is always all right. A. I. ROOT.

A Saving of $600,000,000.

All those of our readers who are interested in any species of legislation looking toward improvement of the public highways will find food for reflection in what follows:

It is estimated that the public roads of the United States aggregate 1,500,000 miles in length. The estimates of Gen. Roy Stone, of the U. S. Department of Agriculture, places the total wagon transportation at approximately 500,000,000 tons The average distance of haul is placed at eight miles, and the average cost of transporting one ton that distance is assumed to be $2.00. This makes the total yearly cost of wagon-freighting a round billion of dollars. All this is assuming that the roads of the country are in their present unimproved condition. Should the roads be put in first-class condition, and brought to something like the state of perfection we find them in foreign countries, this same ton of freight could be transported the same distance for only 80 cents. This effect is obtained in part by the broad tired "Electric Steel Wheels" made by the Electric Wheel Co., Quincy, Ill.

CONVENTION NOTICES.

The Northern Illinois Bee-keepers' Association will hold two sessions of its spring meeting—one at Mr. John Wagner's, near Buena Vista Stephenson Co., under the supervision of the vice-president, and one at Mr. Oliver Taylor's, at Harlem, Winnebago Co., under the president, on Tuesday, May 16, 1899 Everyone is cordially invited. B. KENNEDY, Sec.
New Milford, Ill.

25c for one year's subscription for the brightest, newest, and best MUSICAL JOURNAL in the U. S. Five pages new and original songs and music in each number. Sample copy **FREE.**
The Smith & White Co., Cleveland, O.
In writing, mention Gleanings.

For Sale. Seventy-five colonies of bees on eight-frame Langstroth and Heddon hives at $3.00 each. Also a quantity of hives, combs, supers, and section-supers.
F. R. DAVENPORT, Box 383, Kalamazoo, Mich.

EARLY QUEENS NOW READY, $1 00; six for $4.50. After April 15, 75c; six for $4 25; 12 for $8.00. May, six for $3.75; dozen for $7.25 Warranted; safe arrival guaranteed. Two yards. Big stock of fine queens carefully reared by Doolittle's method. Free circular. **J. B. CASE, Port Orange, Fla.**

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.
W. H. LAWS, Lavaca, Seb. Co., Ark.

Dovetailed Hives,
Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.
J. M. JENKINS, Wetumpka, Ala.

The King Windmills
For power or pumping, the best in the World. Send for circular and prices.
C. O. Weidman, Medina, O.

Root's - Household - Outfits
— OF —
Useful Articles at Half Price.

The name "Root" has long been identified with repairing outfits. The same name will now be attached to two outfits of useful household articles. In disposing of our department counter store we found on our hands a large list of useful articles. To close these out promptly we propose to sell them in outfits, making a complete set or sets at less than half their original price. In other words, we shall offer $5.00 worth of goods (85 different articles) for $2.00 and a $2.00 lot of goods (50 different articles) for $1 00. These goods are all brand-new, and just as we represent them. In order to get full outfits, order early before some of the stock is exhausted. We will sell these with other goods, to go by freight or express.

No. 1 Outfit, 85 articles, Listed at $5.00; Our Price, to Close Out, $2.00.

1 Long-handled Ladle	05	1 Barbant's Toilet-case	25
3 8½-inch crimp Pie-tins	09	1 Towel-rack	10
3 6-inch crimp Pie tins	09	1 Brass School-bell	10
3 10½ inch Jell-cake Tins	15	1 Flying Top	15
3 Tube Cake tins	15	1 Screw-driver and Wrench Combined	05
6 4 inch Pie tins	10	1 Wire Dish-cloth	05
1 Gravy-strainer	05	1 Steel Watch-chain	03
1 Tea caddy	10	1 Flour-scoop	05
1 8 inch Tin Cover	03	1 Broom-holder	05
1 13 inch Tin Cover	07	1 Box Papeterie for Children	05
1 Wire Potato masher	05	1 Boot-jack	10
1 1 qt Funnel	10	6 Bottles Ink (assorted colors)	25
2 Biscuit cutters	05	1 Tin Lamp and Burner	15
1 Nutmeg-grater	05	1 Pair N. P. Tweezers and Ear-spoon	10
1 Pair Scissors	10	1 Milk-skimmer	05
3 Stove-handles	09	3 Pint Basins	07
1 Stove-shovel	10	1 Sink-cleaner	10
1 Kitchen knife	05	3 Pairs Shade and Curtain Hooks	15
1 Can-opener, Cork-screw, Knife-sharpener, and Glass-cutter combined	05	1 Floor dredge	05
1 Beef-steak Mallet	10	1 Mouse trap	05
1 Victor Knife-sharpener	10	1 Wooden Butter-spade	05
1 Wonder Egg beater	10	1 Spool Hair Wire	05
1 Mincing-knife	10	1 Dust-brush	10
1 Luminous Match-safe	10	1 galvanized Potato-crate	20
2 Augite Stove mats	10	Total	$5 02
1 Flower-pot Stand	10		
1 Pair Shelf-brackets	15		
1 Can-opener	10		
1 Soap dish	05		
1 Toy Caster	15		

No. 2 Outfit, 50 Different Articles; List Price $2.50; Our Price, to Close Out, $1.00.

1 Long-handled Ladle	05	1 Key-ring and Chain	05
3 6-inch Crimp Pie tins	09	1 Flour-scoop	05
3 10½ inch Jell-cake Tins	15	1 Box Papeterie for Children	05
3 Tube Cake-tins	15	6 Bottles Ink (assorted colors)	25
1 Funnel and Gravy-strainer Combined	10	1 Milk skimmer	05
1 Wire Potato-masher	05	3 Pint Basins	07
1 Biscuit-cutter	03	6 Enameled Nest-eggs	15
1 Nutmeg-grater	05	1 Spool Hair Wire	05
2 Stove handles	06	1 Sugar-shell	15
1 Combined Can opener	05	1 Butter-knife	20
1 Beefsteak mallet	10	1 Sad iron Stand	05
1 Egg-beater	10	1 Mouse trap	05
1 Match-safe	10	2 Tack-hammers	05
2 Augite Stove-mats	10	Total	$2.50
1 Putty knife and Glass-cutter	05		
1 Machine Screw-driver	05		

Send all orders to The A. I. Root Co., Medina, Ohio. These goods can not be furnished at our branches. After they are sold out the offers will, of course, be withdrawn.

Gleanings for 50 Cents.
For 50 cts. more we will add to either outfit GLEANINGS for the rest of the year.

THE A. I. ROOT CO., Medina, Ohio.

Digitized by Google

Vol. XXVII. MAY 1, 1899. No. 9.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES HONEY AND HOME INTERESTS.

The A. I. Root Co.
MEDINA · OHIO ·

MURRAY-HEISS CLEVELAND O

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, SECOND-CLASS MATTER.

Digitized by Google

The G. B. Lewis Co.'s

BEE-HIVES & SECTIONS

are Models of Perfection.

This is the Verdict of Thousands of Customers and the Acknowledgment of Competitors.

Our unrivaled facilities coupled with twenty-five years of manufacturing experience enable us to anticipate and supply every want and need of the bee-keeper promptly and accurately.

You Want the Best.

They Cost No More.

A Copy of our Catalog and Price List Mailed Free on Application.

Factories and Main Office, Watertown, Wis.

Branch Offices and Warerooms:

G B. Lewis Co., 515 First Ave. N. E., Minneapolis. Minn.
G. B. Lewis Co., 19 South Alabama St., Indianapolis, Ind.

Agencies:

E. T. Abbott, - - - - St. Joseph, Mo.
L. C. Woodman, - - - Grand Rapids, Mich.
Fred Foulger & Sons, - - - Ogden, Utah.
Smiths' Cash Store, - - San Francisco, Calif.

Digitized by Google

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. MEDINA, OHIO
$1.00 PER YEAR

VOL. XXVII. JULY 15, 1899. No. 14.

STRAY STRAWS FROM DR C. C. MILLER

POLLEN in queen-cells I had been taught to believe a sure sign of hopeless queenlessness. I think I've seen a number of exceptions. June 26 I met a plain case. In one of my "barns" I found on one comb three enlarged cells containing pollen, with the queen laying, and all going on prosperously.

YOU DON'T SEEM entirely certain, Mr. Editor, whether I prefer trees to shade-boards for hives. Well, there's no doubt in my mind as to my preference—trees every time. I want the shade more for the benefit of the operator than for the benefit of the bees. [Yes, I was satisfied in my own mind; but I am glad you have put more emphasis on it.—ED.]

C. DAVENPORT gives a bright thing in *American Bee Journal*. Ordinary Mason fruit-jars are good for extracted honey, except that the honey oozes by the rubber band, making the outside surface of the can sticky. Well, dip (not soak or cook) the rubber band in boiling beeswax, and never a drop will ooze through. He is probably right in thinking that many a can of fruit would be saved from spoiling if the rubber rings were waxed.

AN UNUSUAL CASE was this: June 26 I found in a nucleus a young queen with her wings gnawed entirely away. Directly I found on the same comb a young queen with perfect wings. The two met and had a little conference, but did not seem very hostile. Next day both were present; the 28th I saw the winged one; 29th, the wingless one; July 3, the winged one. So both were there together at least three days, and whether the wingless one is still there I don't know.

EDITOR BERTRAND says foul-brood spores may be floating in the air. Others dispute this, I think, and I should be glad to believe that the distinguished Frenchman is wrong. He thinks that, in localities where the disease has been for some time, the bees become somewhat immune, or else the scourge loses some of its virulence. He believes in curing by naphthol beta or formic acid. [It is barely possible that foul-brood spores might float in the air, but I think it is very doubtful.—ED.]

PAGE 498 is a strong argument in favor of Doolittle cells. What is now wanted is to have added to the list of supplies a proper division-board that may be used in the regular hive. I suspect that having the cells between two combs with young larvæ is an important point. In hot weather wouldn't two compartments be as good as three? Is an 8-frame hive large enough for three compartments? [Yes, in hot weather two compartments would do, perhaps, as well as three; but having in any case the frame of cell-cups between two combs of young larvæ is quite important.—ED.]

PROF. S. J. HUNTER, who will be pleasantly remembered by bee keepers who attended the Omaha convention, has written "Alfalfa, Grasshoppers, Bees; their Relationship," a pamphlet published by the University of Kansas, that is of much interest. A careful counting of seeds showed that "the seed crop of alfalfa upon which bees worked was 66.6 per cent greater than the crops taken from alfalfa dependent upon other insects for pollination." Coming from a man who is plainly no bee-keeper, that statement has weight. [This is indeed a valuable point; and yet there are just a few, even among bee-keepers, who insist that bees have very little to do with the pollenization of plants.—ED.]

ONE FEELS a bit confused on reading, on page 516, a heading, "Bees for Fertilizing Cucumbers," and then the next item beginning, "I always fertilize my Irish potatoes with cotton seed, and have never seen a bug on them." Now, if potatoes can be fertilized with cotton seed without the intervention of bugs, could not cucumbers be fertilized with cotton seed without the intervention of bees? On the other hand, might it not be cheaper to have either fertilized by bugs or bees than to fertilize them by hand by means of cotton seed? [Dr. Miller seems not only to have become "rattled" himself, but he succeeds in rattling everybody else who tries to read his Straw and understand "what he is at." I suppose the sum and substance of his criticism is that the word *fertilizer* means one thing in speaking

Digitized by Google

dation from the leaves of certain plants that probably has no connection with any insects. But is this honey-dew?—Ed]

At one time I thought the bees were in for a crop of honey. But it has come in so slowly that some have made a little start in supers, and some haven't. At such times it seems to me it must be more satisfactory to work for extracted honey. [But you do not tell us, doctor, definitely, whether the season in and about Marengo is likely to be a failure or not. I take it that it will, as your only source is clover, and that is probably over by this time. From present indications the season over the country generally will be even poorer than that of last year, and we thought 1898 was about as poor as it could be. Comb honey—at least a choice article—ought to be sold at a higher price than it has sold for for several years past.—Ed.]

Mr. Editor, your demands are ridiculous, p. 545. You want a young lady to cut a limb from a tree, said limb having a swarm of bees on it, and said young lady then and there to have an unconscious air of ease and grace. Unconscious air after cutting down a swarm? Not much. If she's the girl I take her to be, a girl worth looking at in a frontispiece, there will be, after she gets possession of that swarm, a conscious air of flushed victory, as who should say, "I'd like to see a man do that job any better!" [All right. She can have a "conscious air of flushed victory," but she must not have "a conscious air" that some one is looking at her and admiring her. Such a state of consciousness, to my notion, is awful to behold in any one.—Ed]

A. J. Wright, in that article, p. 531, shows that he is a keen observer, and his observations are well worth consideration; but when he makes the startling statement that "many animals can see perfectly *only* in total darkness," and that there are "rays of dark" as something distinguished from rays of light, we certainly have a right to ask whether any other scientist believes or teaches any thing of the kind. Friend Wright, please tell us whether any other authority teaches that an animal may see in any way except by rays of *light* impinging on the retina. [I do not know enough about the question of light and darkness, or "rays of dark," to say whether Mr. W. is right or wrong; but I do know that he has demonstrated that some so-called scientists are clearly wrong in some of their "science;" but nevertheless he may be wrong on the subject of "dark rays."—Ed.]

As footnote to that item about the bee-escape, p. 545, let me make some remarks. As you give it, you must have taken it in a shower. It's never wet except by rain—possibly being wet wouldn't be a bad thing. It never fits tightly, but hangs loosely, although bee-tight, a very important feature being that it can be *thrown* on and thrown off, for it's put on the first super of the pile, and taken off and put on again every time another super is added. There's no cone in the case, but a three-sided pyramid, because easier made. I don't first shake bees out of super—can't. I smoke 'em out. (Have spoiled honey by smoking too much.) The thing is simply a robber-cloth with a piece of lath nailed on two opposite sides (oftener two pieces on each side), and the other two sides weighted down with shot in the hem, a triangular hole cut out of the center, and the pyramid sewed on. It can be picked up with one hand and thrown on; and while the pile is low I always kick it off to put on the next super. That's about all there is of it, but it's a very convenient thing for one who hasn't a bicycle and doesn't want to make an extra trip to put on Porter escapes. [If you are not the one who wets the cloth that hangs over the top of the hive, then it is somebody else, and that some person told me of this trick, I am positive. The point is here: Robbers, if there should be any such, hesitate about prying under a wet cloth; but if it be dry, on the other hand, they will squeeze under providing they have physical force sufficient to accomplish the act. Very likely, however, your four edges weighted down would, in practice, accomplish the result, if the skirts, as we might call them, have not been previously soaked in water. The kodak picture that I took of the device was not very clear, and I asked our engraver to make a pen-drawing showing a view which I knew would come up distinctly where a half-tone would be a perfect blur. That accounts for the cone showing instead of the pyramid.—Ed]

The blazing sun, with fervent glare,
Pours down its torrid heat:
The flowers wilt, the ground is bare—
What have the bees to eat?

AMERICAN BEE JOURNAL.

The first page of the issue for July 20 shows a view of the apiary of Miss Ada L. Pickard, with the owner in the foreground. It is located in Richland Co., Wis. She managed an out-apiary of 100 colonies last year, and secured 16,000 lbs of basswood honey. This is an unusual record, and Miss P. certainly has a right to assume a "conscious air of flushed victory," as Dr. Miller gallantly puts it.

In speaking of king-birds, Prof. Cook says there are two kinds that are doubtless bee-eaters, and that they would doubtless eat queens as well as workers. They belong to the *Tyrannidæ*, among which is included our well-known beautiful little pewee, or phebe bird. In their own apiary he has seen the king-bird dart down to the hives, but the stomachs of the birds were found to contain nothing but robber-flies, which are among the worst enemies they have. On the whole, Prof. Cook considers these birds more the

Digitized by Google

friend of the bee-keeper than his enemy. This is good news to me, for I confess I have no pleasure in hearing of their destruction. Perhaps owls, hawks, and snakes will seem less hateful to us when we know more about their habits.

In speaking of the difference between dead brood and foul brood, Prof. Cook says: "This dead brood is not at all like foul brood, and any one who attends to the following description carefully will have no difficulty in distinguishing the one from the other: In this case the characteristic, most disagreeable *odor* of foul brood is wholly wanting; the sunken cell-cap, with its frequent perforation, is also absent. The dead brood is always in the form of larvæ, and never in the sticky, pasty, unctuous mass so characteristic of foul brood. We insert a pin and draw a decaying larva from the cell, and it is not a stringy or ropy substance that springs back when it lets go the pinhead, as is true of foul brood, on the whole, yet it often appears coffee-colored or a rich, dark brown, as does foul brood. The surest way to tell is in the character of the decaying substance in the cell. If the larva is always found, showing the form even in its decay, instead of the stringy, elastic, pasty mass, then it is not foul brood."

In speaking of the word "maroon," as applied to bees, Dr. Miller asks of Mr. Doolittle: "If you knew them to be maroon, while all the authorities, the books, and the bee-journals, were calling them yellow these years and years, will you be kind enough to tell us why you never mentioned it before?" As words expressing shades, such as ecru, maroon, subdued gooseberry, etc., are indefinite, why not compare one thing with some object with which all are familiar? For instance, lemons and oranges are so fixed in color as to be good standards. This morning I saw some bees on my pumpkin-blossoms, and their segments were so near the beautiful orange of the blossoms, in color, that the difference was hardly perceptible. It occurred to me then that here is a good thing to measure color by. Orange is a primary (rainbow) color, and is certainly nearer the color of Italians than lemon yellow. "Maroon," in bicycle talk, seems to call for a muddy purple. The bees in question on my vines belonged to the foreman of the job-printing department here. He keeps them on the roof of his house, about ten rods from mine. I never saw a happier picture than those bees in the bottom of those beautiful yellow cups, rolling in what was to them golden wealth.

BEE-KEEPERS' REVIEW.

The July issue starts out with a beautiful picture of a basswood limb, followed by an editorial article on this great honey-tree, now so rapidly passing away.

Dr. A. B. Mason's department is worth all the *Review* costs. His remarks relative to omitting addresses of correspondents meet my approval. In a somewhat facetious manner he settles the question thus: "The first time I saw that one of Bro. Doolittle's articles came from Onondaga Co., I wondered if he had changed his place of residence, and left his 'old stamping ground' at Borodino; and when I saw that our dear Prof. Cook had changed from Claremont, Cal., to Los Angeles Co., I unearthed a postal guide, and, to my extreme satisfaction, found that, like Bro. Doolittle, he was holding forth from the same 'home-nest' as before, and I sincerely hope that no more of our bee-journals will cease to give their readers the postoffice addresses of contributors."

C. Davenport tells how he sells honey at home. He touches on one point that I have often thought has been neglected — the local paper as an advertising medium for honey. Mr. D. relates how he sold 4000 lbs. of honey. He advertised 18 lbs. for $1.00, describing extracted honey as being free from wax and wood. He then authorized his banker to offer $100 for evidence showing that his honey was not pure. The result was, he sold all he had and 500 lbs. more that he bought.

Aaron Snyder writes about the drawbacks of Cuba as a honey country. He claims that Cuba is the best honey region in the world, but among the disagreeable features of that island he mentions the language, insects, fleas, jiggers, scorpions, snakes, etc., all of which Mr. Poppleton has described in these columns. Quite likely these pests will not deter the average American from going to Cuba provided the honey is there, for they will rapidly disappear before American genius.

F. L. Thompson's "Notes from Foreign Bee Journals" is an important and valuable feature of the *Review*. I fear but few realize the amount of work necessary to produce so good a result. It shows at a glance the latest conclusions in that hotbed of mental activity, Central Europe. Why honey keeps better by being boiled is thus explained in a German bee-journal: "Although the formic acid evaporates, the albuminous ingredients, which are what cause fermentation, are also separated in the foam."

CALIFORNIA ECHOES
BY J. H. MARTIN.

According to Straw upon page 421, Dr. Miller has remarkable hens. He really conveys the idea that his hens hatch chickens from onions. No lice on those birds.

Dr. Miller's intellectual machinery must be out of gear if he can not see the difference between Indian and squaw. Indian conveys the same idea to me as German, Celt, etc., while *squaw* is a degrading personal epithet. Do you see, doctor?

Digitized by Google

In the *American Bee Journal* Mr. Dadant thinks bears are deterred from robbing beehives by the fear of stings. Bears are not built with that sort of fear in this western country. Bears make sad havoc with an apiary in this State, and never let up until they have filled themselves with honey. Possibly Mr. Dadant was thinking of French bears. Of course, they are not so aggressive as American bears.

Mr. Brodbeck and I have been sort o' neighborly and sociable this season. He moved his bees into an adjoining canyon, within easy visiting distance, with some hopes of securing a little honey. But his hopes are blasted along with the rest of us, and I think they are a little blasteder, for he is not only minus a honey-yield but minus one of those bull-terrors. The poor dog fell into a reservoir and was drowned. It is supposed that the dog, being old and feeble, and his tail becoming so animated at the sight of water, it wagged the body into the reservoir.

It is of no use for Prof. Cook and me to be hopeful about getting a honey crop in Southern California. We hear of but two carloads being shipped, and those from a few favored localities. Even where circumstances were favorable, the fogs were so numerous and cool that the bees could not work to advantage. Our only hope now near the coast is a yield from sumac, which is coming on very full of bloom; but we have discovered that, to have a honey-plant fulfill its mission, it must have the moisture below as well as right conditions above. We hope, however, something from sumac.

News comes from that man Wilder in Northern California that he has shot two bears and a buck, and the end is not yet. His prospects for a honey crop are not flattering; plenty of flowers but weather too cool. Barring the bears, the same news comes from Mr. Littooy, of Tacoma, Wash. It rained all the while when I was there in November. It has dropped off now to raining every other day; but that is a little too much for the successful honey gathering. Central California complains of a shortage of the honey yield, and, taking it all together, there will not be honey enough produced on the Pacific coast, from Mexico to British Columbia, to supply the home markets.

I clip the following from a paper published in my native State, New York:

The Tripp bill, defining the sizes of small-fruit packages, has become a law. It provides that all manufacturers of small-fruit packages, such as quarts, pints, and half-pints, that make or cause to be made such packages that are of less size or capacity than the standard sizes, as defined in section one of this act, shall mark such quart, pint, and half-pint with the word "short" on the outside in letters not less than half an inch in height.

Then follows the penalty. How about sections of honey that are short? I know of some parties who use that style of section, and advocate the sale by section; but even in this way of selling, the purchaser thinks he is getting a pound. Taking all things into consideration, is it not better to stick to the full-pound section rather than be compelled to by law?

NIVER ON THE WITNESS-STAND.

Grading and Marketing: Valuable Pointers from a Practical Man.

[In our issue for June 15 I referred to the visit of S. A. Niver, and to the fact that one of our stenographers, "W. P." had taken down in shorthand an extended conversation that occurred between Mr. Niver and myself. Knowing that our friend was full of good practical "bee-talk" I took occasion to draw him out on various subjects on which he was familiar, especially on the matter of grading and marketing. While we were in "Ernest" conversation "Bob" snapped the camera at us just as we sat before my desk. Without further introduction I'll give the dialog (the first installment of it), just as it took place between us, beginning at the very start, when he came into the office.—ED.]

E. R. Root.—Well, well, well! where did you drop down from, S. A. Niver?

Mr. Niver.—Why, I just took a run over from Mantua Station, Portage Co., Ohio, on my wheel.

R.—Ran over? Why, how far is it?

N.—About fifty miles.

R.—Fifty miles? Why, how old are you?

N.—It seems to me that is a leading question. I have not reckoned up lately, but I was born in 1847.

R.—Well, sit down. You must be tired.

N.—Your Ohio roads have a good deal of road to the mile.

R.—But we have not the hills you have, anyhow.

N.—I would rather have hills than sand and clay and hills too. Well, how are things going on here?

R.—Oh! we are all as busy as can be. Have bees wintered fairly well?

N.—There is an average loss of 40 per cent thorughout our country.

R.—Forty per cent! My, oh my! How did Coggshall come out?

N.—He told me that he had 3000 pounds of honey that he had extracted from combs of defunct colonies.

R.—Extracting from dead *bees!* Who ever heard of the like?

N.—Buckwheaters. By the way, that word accounts for a great many of our peculiar notions. We buckwheaters can not manage bees as you people do who have no buckwheat. It brings many new elements into it, and we must take them all into consideration.

R.—You mean, I suppose, that he extracted from dead *colonies.*

N.—Yes. Our bees, you must remember, go into winter quarters heavy with buckwheat honey, loaded clear to the brim — or at least nearly always. If a colony dies from any cause whatever, there is a large supply of buckwheat honey left in the brood-chamber. That honey is really some of the best, because it is so ripe and so good.

R.—But I should have thought he would have wanted to keep these combs for raising bees in the spring, instead of extracting.

Digitized by Google

N.—After we strike the soft-maple bloom there is nearly always something coming, clear through to the first of September. If the weather is favorable, bees breed very rapidly because honey comes in constantly.

R.—Oh! you are buckwheaters, then, I see. You don't need to have a lot of honey in the combs from springtime till fall. Is that the idea?

N.—If we can get a colony through till soft-maple blossom in the spring, it is all we care for. After that they can take care of themselves. Well, what did you hear about the grading-rules?

R.—Your general scheme of grading is pronounced all right, with one exception; that is, that perhaps you did not allow enough difference between No. 1 and fancy.

N.—I wrote you, when I sent you the photos, that they did not show the same difference that the sections themselves did.

R.—Yes, that was apparent from the photos.

N.—If any one will take the pictures and hold them off at arm's length, he will see that there is difference enough. The fancy is enough heavier to make the difference.

R.—Then the real distinction between the two was weight, was it not?

N.—Yes.

R.—Fancy was, perhaps, a little darker in cappings, and that was why so many seemed to think No. 1 equal to your fancy.

N.—But is it not possible in some way to get it into your head that this grading has nothing to do with *quality* or *color?*

R.—That was clear enough to me, but perhaps not to others.

N.—Those three pictures I sent were all alike of buckwheat honey, all of one color.

R.—What do you think of having an *extra* fancy, say four grades in all?

N.—What is the good of that?

R.—Why, there is some honey that is sealed clear out to the wood, clear around, or nearly so; and now why not have just one notch higher?

N.—In one hundred cases, how many cases of sections would you expect to find of that kind?

R.—Perhaps one or two.

N.—Well, doesn't that answer your question—that it does not pay to fuss with such a little amount?

R.—I don't know. If I were to get two cents more for those two cases, this would—

N.—Confuse people with another grade—that's all.

R.—Well, perhaps you are right.

N.—Now then. Three grades—fancy, No. 1, and No. 2; three qualities or colors of each kind—white, mixed, and buckwheat, makes nine grades. I think that is all we can ask people to keep track of—our merchants, commission men, or producers.

"Is it not possible in some way to get it into your head that this grading has nothing to do with *quality* or *color?*"—*S. A. Niver.*

Digitized by Google

R.—Perhaps you are right; but somehow I have a sort of lurking feeling that I should like to have a place for those fancy fellows that are filled clear out to the wood all around.

N.—All right. That one case that you can get out of your whole crop, take it home and eat it yourself—don't try to sell it.

R.—Why not?

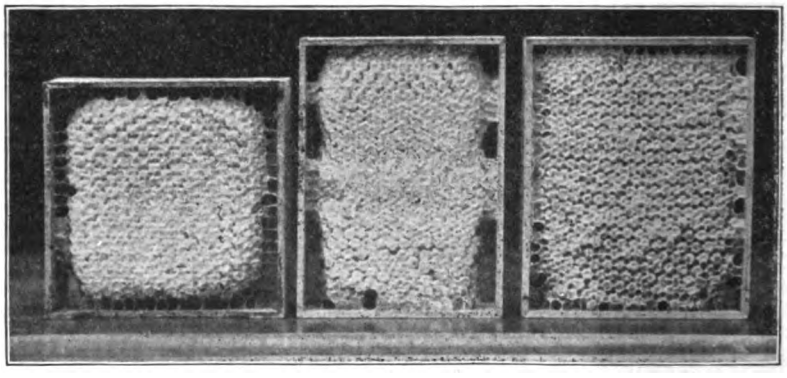
N.—You need it in your business at home.

R.—How so?

N.—Why, if you select a *little* lot that way it makes one more element to confuse the grading-rule and result in a dollar profit per 100 colonies. Simplicity is what we want more than any thing else. Our rules have been so complex that nobody has been able to follow them. I see that J. E. Crane, on page 126, Feb. 15, has three sections. There is one fancy. You can not call it *extra* fancy, but just *plain* fancy.

R.—Now, I would call it *extra* fancy—that is, if you have that grade.

N.—Well, perhaps it would go for the poorest of the extra fancy; but in the middle one is where the money lies.



"The retailer finds it much easier to sell the middle box at 10 than the right-hand one at 15."—*S. A. Niver.**

R.—Why so?

N.—If I were producing honey strictly for my own pocket-book, to fatten my purse, so to speak, I would try to produce honey, every card of which is like that, and never *one* like the extra fancy.

R.—Explain yourself a little further. I do not quite get it through my head.

N.—Simple enough. To get that extra fancy you must crowd the bees for room until they store every corner full. They will not produce more than half as many boxes, and finish them like that extra fancy, as they will of the other, and I can get more money for the poorer style and the greater number of boxes.

R.—Do you mean more per *colony?*

N.—Yes, per colony.

R.—You said, a moment ago, if you were running your bees to fatten your pocketbook you would try to produce sections like the one shown in the middle; then you imply that the consumer has some rights in the matter, by the way you put your proposition. Now, then, if you were producing honey for your uncles and aunts, which honey would you produce for them?

N.—If I were producing honey for my uncles and aunts, for the table, I should prefer some like that square section in the picture, and you will have a clean nice piece on the plate, while the fancy will be smeared on all sides on account of cutting full cells next to the wood.

R.—Why, Niver, you would not go back to the 4¼ sections, would you?

N.—Oh, no! I called your attention to this picture as an illustration. No. I want the long box for many reasons.

R.—You mean that you would prefer the long box filled like the 4¼ in this picture, with the cells unsealed next to the wood. Is that your idea?

N.—Yes, for my eating I would; and I believe I can get three boxes filled like the middle one, where I can get one like that shown at the right, averaging it through the apiary. Three boxes like the middle one in the picture will sell for 30 cents while that one at the right will sell for 15. Figure up your money. It will cost a little more to make the three boxes; but we have quite a margin, you see, to come and go on.

R.—Do you really mean to say that you can produce three like the middle one where you can produce one like the right-hand box?

N.—Well, let us see about that now. Perhaps that is a little too strong a statement; but with comb in sections not exceeding 1¼ inches in thickness, we can very nearly do it through the whole apiary; perhaps not quite, but close to it. You can get boxes like this by tiering up rapidly during the fore part of the honey-flow; and under favorable conditions they will cap and finish sections like this sooner than you can make them finish the fancy. And right here let me call your attention to the buckwheaters' advantage over you "single taxers" (meaning *all-white-honey*

*Cut re-inserted for the convenience of our readers.

Digitized by Google

producers). The first flow that shows up in our sections will be that lovely red raspberry — rarely enough of it to more than color the center; then white and alsike clover and basswood. We are not put out by having a large lot of half-finished sections at this stage of the game, for we confidently expect all such to be finished with a rich border of buckwheat honey, making our "Fancy Mixed" brand, which commands as high a price as the "Fancy White." We can spread out as much as we like in the early part of the season, reserving our caution for August 20.

R.—But, see here, Niver. The honey that I saw at Morton's would grade higher than the middle box you are talking about.

N.—But, brother Root, you must remember that Morton did not work for Morton's pocketbook entirely, but he worked to obtain the highest results possible, as an *artist;* and you know how freely he gave the results of his experiments to the fraternity. The pocketbook was with him a secondary matter; and his motto was, "The best is none too good."

R.—Then he did not run to fatten his pocketbook, but to benefit his customers.

N.—It was a pride with him to get the very best possible results, and the box at the right was what he aimed for all the while. Another thing, the retailer finds it much easier to sell the middle box at 10 than the right-hand one at 15.

Concluded in next issue.

DRONE-CELLS VS. DOOLITTLE CUPS.

The Barber Method of Producing Comb Honey.

BY W. C. GATHRIGHT.

I was intending to keep still; but when you say, on page 458, in regard to raising cells in a hive containing a laying queen, that "without artificial cups nothing could be done," I can not keep quiet any longer. I have been raising cells by the Doolittle plan for three years, in upper and lower stories, with the laying queen in the hive all the time. I have not made an artificial cell for two years, and would not think of going back to that plan. I use strips of drone comb with the cells cut down half depth, and place a larva in every other cell. This gives room to cut them apart. I often get every cell accepted, and as many as 22, though I destroy all but about 12 or 15. I make a frame with top-bar and ends only ½ inch wide, and do not put on a bottom-bar, but put in a bar about ⅜ square, half way between the bottom and top. This middle bar is to fasten the strips of drone comb to.

I next cut my drone comb in strips about ⅜ wide and 4 inches long. I use three pieces for each frame. To fasten them to the bar I use melted wax. I dip each piece into the wax, first letting the edge of one side touch the wax, when it is placed on the bar, and it is fixed perfectly solid in a moment. I can fasten a strip of drone comb in the same time it would take to fasten one artificial cup. This, I believe, is the same plan given by H. L. Jones, of Australia, some time ago in GLEANINGS.

As stated above, I have used this plan for two years, and with perfect success at all times, from early spring till late in the fall. Before I began using the strips of drone comb I used the artificial cups; but I have been much more successful with the drone comb than with the cups, and it is so much less trouble to prepare the strips of comb that I would not think of fussing with cell-cups.

It seems the Barber plan of using shallow frames in comb honey, supers to get the bees started working above, is gaining favor rapidly. No doubt many were working along the same line at the same time. In an article in the *Progressive Bee-keeper* for Jan. 1, 1898, I recommended this plan of getting the bees started above; also in GLEANINGS, Nov. 1, 1898, I recommended this plan to Dr. Miller (see his comments in that number).

My experience in using bait sections is the same as Mrs. Barber described in June 15th GLEANINGS. If the season is poor they fill the baits and leave the other sections untouched.

This season I filled supers full of drawn comb the same as I had been using as baits before. I do not practice using the shallow frames above sections. I can use them another way, which is more profitable to me. After they are partly filled, and the queen has filled a few of the central combs with brood, they are taken off and placed on those not yet strong enough to work in supers. I thus keep on till all are strong and working above. When the supers are taken off and the honey extracted, the combs are put away until the fall flow of dark honey, when they are put on the hive again in place of the section supers.

There is one point just mentioned by Mr. Louis Scholl (page 431) that needs more emphasis. When a set of shallow frames are placed on the colony just before the flow, the queen will occupy all the cells below, clear up to the top-bar; whereas, if no combs were given them above there will be 1½ to 2 inches of honey stored between the top-bar and the brood, which is the case every time, in this locality at least. It is the point so often emphasized by Mr. Doolittle, that, if the bees once get to storing below, it is hard to get them into the notion to go above; and, by the way, this seems to be the strongest point against deep frames for comb honey.

Dona Ana, N. M., June 23.

[If you have a method by which you are getting drone-cells, as you describe, started into *queen*-cells, in a single-story colony having a good fertile queen, you have done what no other queen-breeder has accomplished heretofore. H. L. Jones, J. D. Fooshe, and others who use drone-cells in lieu of queen-cups, are obliged to put these strips of drone comb *first* into a *queenless* colony to get them *started;* then when "once started" they can be transferred to colonies having fertile queens.

Well, now, *if* you are obliged to put these drone cells into queenless colonies to get them

Digitized by Google

started, I do not see how you save any labor over the method that makes use of Doolittle cell-cups, the same being placed directly in a hive having a queen.

Is it not possible that you have not learned how to make Doolittle cell-cups rapidly? The man who rears our queens has no difficulty in making them at the rate of 1500 a day, and with proper appliances they can be turned out at the rate of several thousand a day, and the work all done by a cheap boy or girl.

Now, if you do not get around the use of queenless colonies, I hope you will tell us in the next issue of GLEANINGS just how you do it. By the Doolittle method of using cell-cups, it is not necessary to have a queenless colony in the apiary, except during the time the ordinary virgin queen takes to become fertilized, and even then, under some circumstances, these young queens will sometimes take their wedding-flight from an upper story of a colony having a good queen below.

But there are several points in favor of the Doolittle cell cups: The cells are more regular, easier to put into queen-cell protectors, and they are less liable to be damaged in handling. —ED.]

APIS DORSATA.

Bee-keepers of Australia After Them; Length of Tongues of Dorsata.

BY H. L. JONES.

I note in GLEANINGS that you are now making renewed efforts to introduce *Apis dorsata* into America; but as you already have been on this same trail for some 20 years I reckon we shall get ahead of you unless you accelerate matters considerably on your side. As far back as 1878, A. I. Root offered $100 for a single colony delivered to him; but no one succeeded in obtaining the prize, and now you are offering $25 for a single queen alive. You think it will be a joke if GLEANINGS gets ahead of the government in securing the big bees; but I'm sure it will be a bigger joke if we get ahead of GLEANINGS with its 20 odd years' start.

By this mail I am sending you sample workers of *Apis dorsata* that I received from a customer of mine (a practical bee-keeper) who left this colony a short time ago, and is now domiciled in the Malay Peninsula, right where *Apis dorsata* abounds. I have just shipped him four colonies of Italian bees, with more to follow; and if he finds that dorsata can be domesticated he will return some colonies in those specially constructed shipping-hives The sample bottle that I send you contains four *Apis dorsata* workers and one *Apis ligustica* that I put in for the purpose of comparing sizes. My correspondent thinks they can be domesticated, and I herewith quote a little from his letter, which I think will be of interest to you:

I return by this mail your mailing-bottle, with samples of native bees here; but I am not qualified to say whether they are *Apis dorsata* or not. I think they can be domesticated, but it is very difficult to get them. I have already expended about $9.60 hunting after them and paying natives to allow me to take them from trees near their houses; but when I return with ladders, etc., to take them, I find that they have been smoked away with torches on long poles. Whether this is done for the honey or through some superstition I can not say. As these bees attach their combs to top branches of very high trees (probably because they are hunted so much by Malays), and generally to very thick branches, it is no easy job for one man (I know of no other man here, either European or Asiatic, who will go near bees) to get up so high and cut the branch and lower it, and then carry it home; however I hope to succeed if I can find them on accessible branches. I would cut the branch the same length as a top-bar if possible, or of a length that would fit some box, and then fix a cover about a foot above the box, and gradually lower it after about a week, leaving an entrance above as well as below for a time; then I would put a frame with a starter on each side of the bees.

There is a smaller bee here, something like a dwarfed Italian, but it is said to be not a very good honey-gatherer.

Now, friend Root, I should like to have you examine these bees minutely, or pass them on to some expert so that the relative length of the tongues of these and *Apis mellifica* might be ascertained. According to some measurements made by Mr. F. W. L. Sladen, of Ripple Court, England, and reported in GLEANINGS, 1897, page 487, the tongue of *Apis dorsata* is scarcely any longer than that of our ordinary bee; and if such is really the case it might not be advisable to introduce them, even if they could be domesticated and their migratory instinct overcome. To my unaided eye, however, their tongues seem much longer than those of our common bees.

As soon as I learn something definite regarding the value of these bees from a commercial standpoint I will write you further; and I also trust that I shall then be in a position to scoop that twenty-five-dollar bill.

Goodna, Aus., May 6.

[All right, friend Jones. If you bee-keepers of the southern hemisphere succeed in getting dorsata into civilized beedom before we do, we shall rejoice with you, and at the same time have the satisfaction of knowing that, *if* they have bad traits, *you* will pay for the experiment and *we* will get the benefit of it. However, if we can get them before you do we will take our chances.

I have just been comparing the specimens of dorsata sent by you, and those sent by Mr. W. E. Rambo, of India. Those from the latter look much like very large five and six banded Italian bees; while those you send have less yellow on them, are somewhat of a bluish cast, and are, I should judge, slightly smaller. They are evidently dorsata, however, but may be a different variety, just as we have varieties among the *Apis mellifica*.

With regard to the tongues of the dorsata, bees, as soon as placed in alcohol, have a fashion of pushing out their tongues to their fullest length; and it is evident that the specimens of dorsata sent us did that very thing. I may be mistaken, but their tongues do not appear to be any longer than those I have seen on red-clover Italians.

Cheshire says something about the wonderful harmony in nature; that the tongues of bees are adapted to the length of the flower-cells as we find them in the vegetable kingdom. Is it possible that the tongues of the

Digitized by Google

different species of honey-bees are of very nearly the same length for that reason? One of the chief things that have been claimed for dorsata is that it would have a longer tongue, and this inference seems to be drawn from the fact that the bees are larger, and therefore the tongues would bear a direct proportion in length. If Sladen's measurements are correct, there would seem to be but little in this. I will gladly furnish a dozen specimens of the dorsata to any professor of a college or other competent person having the necessary micrometer scales to make the measurements.—ED.]

SCIENTIFIC BEE-STINGING.

How it Feels to be Stung 150 times; an Interesting Account of a Painful Experience; Frames Shallow vs. Langstroth Frames; Hoffman Frames; Big Hive, Big Frame, Big Extractors vs. Small Hives, Small Frames, Small Extractors.

BY W. A. H. GILSTRAP.

In May 1st GLEANINGS, p. 361, is the sentence, "Could the bees have been turned on the tormentor of the faithful old horse it would have been a pleasing feature of the program." To me the sight of bees stinging even such a man would not be pleasing personally; but there is so much in his suggestion, from a scientific standpoint, that it certainly should not be treated lightly.

To start with, we care less about the scientific aspect of horses than of people; that is, horses are not such interesting subjects as human beings. Then man has a finer nervous system, and the stinging of bees would probably act quite differently with him. But man's chief advantage is that he can tell you how it feels as it goes along. A good doctor should make note of this at once, for the subject is liable to forget. If a colony with any vim is used twenty minutes, a man bent on suicide should be requested to act as bee-tormentor, for it would certainly prove fatal to man or horse.

Contrary to my wish, I have had some experience along that line. When loading bees on a wagon, with the team hitched to it, a hive "sprang a leak"—not a strong colony, but how they did come out! Having no good Corneil smoker, of course I had to unhitch; for to leave the horses to be stung was out of the question. To free jumping, kicking horses is no easy or quick task. All the time the bees were using my head for a pin-cushion. At the first my hat fell off, or was knocked off, and the bees seemed to think the hair of my head was the only place about me worth settling on. Soon all individual stings were lost track of. The poison deepened and thickened, it seemed, giving my head a numb sensation, the actual pain diminishing considerably, though the scent was sickening.

The horses lost no time in getting to a spring about 200 yards from the wagon, where I stopped them. My next move was to wet my head with cool water. Was that a mistake? After tying the team to trees I sat down on a rock to rest, for I was quite faint. External swelling was less than one sting sometimes produces. Inside my head the swelling was distressing, causing my sight to fail entirely at times, it seeming that my eyes would be pushed out of their sockets. Itching all over my person was intense. There seemed to be a stream of suffocation extending from my throat to my heart, which threatended to stop the latter organ from working. These terms may not be correct, but they are the best in my vocabulary. I went to the house, a few rods away, lay down, and soon went to dozing. In two hours I could go to work, but did not feel well for several days.

My brother, a lad at the time, was a witness, and he never questioned my estimate of 150 stings in about half a minute, so far as I know. If my experience is worth any thing, death from bee-stings is not extremely painful. Perhaps some one has experimented further, and can show my mistake. Can a horse tell?

If you wish to know the effect of stinging on the bees, try buckskin gloves for them to sting.

Should a "gentleman" of "high moral standing" have a horse severely stung for little or nothing more than idle curiosity in this country, he would probably find proceedings commenced against a heartless criminal. To say less would not express my full view, but I do not blame the editor for thinking well of the man.

A correspondent wrote me recently, asking: "1. How would you like a twelve-frame hive, same frame as Langstroth, except two inches shallower? 2. Why? 3. Why not? 4. What hive is better? 5. Why?"

As the questioner reads GLEANINGS, it may be well to answer him through its columns:

1. If you mean an apiary of such hives it would certainly suit me very well. To have several kinds of hives, especially frames, in one place, makes many extra steps, and is a canker on an apiarist's time, and therefore on his income. The hive mentioned is certainly good for either comb or extracted honey. For comb honey it would be a good hive by contracting and expanding intelligently. It has been truthfully said that expansion is the better part of the contracting management. But as I shall not likely use many sections soon, we will regard it as an extracting-hive.

Because it is an odd-sized hive I shall assume it is not very well made. Very few are. Regular goods are frequently poorly made. A supply-dealer who makes many hives wanted to buy a hive made by a competitor on this coast, saying he had several Eastern hives, and the hive in question was the best he ever saw. The super was well nailed, and some bee-keepers present noticed that, when it was placed on a table, one corner would remain half a bee-space above the table while the other corners touched.

If the frames are Hoffman style, which have been so popular since 1891, I could soon remedy that defect with a sharp knife or plane by removing the end-bar projections. One season, with 70 Hoffman hives (eight-frame L.), in which I many times felt like kicking the

Digitized by Google

frames out because they seemed determined not to be pried out, may not be a fair test.

2. Because the frame is small enough for ladies to handle, and also large enough to contain considerable honey or brood. If the bottom-bar is ¼ inch thick, and the top-bar ⅝, the comb surface is a trifle more than the Dadants use for extracting.

4. In my opinion the ten-frame Langstroth is better.

3, 5. With top and bottom bars, as above indicated for each frame, 13 of the frames you speak of would hardly contain as much comb surface as 10 L. frames. The latter are not too heavy for me to handle, and I certainly do not need to handle so many to accomplish a desired result, which is quite a time-saver. The L. frame is cheaper, as there are fewer pieces to make. It is easier to lift, as you can get your load nearer to you. To a man who wants the hand-holes in the side of the hive, this advantage may not be apparent. They load to much better advantage in an ordinary wagon. The lid is not so apt to leak rain, nor the bottom to leak bees, as the broad hive would be. The corners are not so apt to give way in a few years with the L. hive as with the broad shallow one. If I should want to sell them there are five men who would prefer the L. hive to one who would prefer the other kind.

However, I have no desire for a large frame like the Dadant or the France "shot-tower" frame. I used to want every thing big. A few months with a big horse convinced me that one of an average size is worth more to me. A few years' experience with a six-frame extractor has cooled me down in that line, and next month I shall get a two-frame machine. For three years I have had a little wife, and I would not now trade her for any jumbo in the State.

Grayson, Cal., May 12.

[I infer that our friend Mr. Gilstrap has had an unpleasant experience with the Hoffman frames. These he refers to doubtless had the old-fashioned top-bars, and there is no denying the fact that in some localities they were very difficult and unpleasant to handle; but any one who has these old-fashioned frames can very easily convert them into the new style, with suitable end-spacers.—Ed.]

TRAVEL-STAIN.

Do Bees Have Dirty Feet?

BY A. J. WRIGHT.

Hardly an issue of Gleanings but has one or more articles on travel-stain. I believe the expression as applied to the cappings of comb honey to be practically a misnomer. A honey-bee with dirty feet! Why, bless you, no! They are the cleanest little fellows imaginable. I dare say they wash a hundred times where you do once, and then you call them dirty? Didn't you ever see a bee "making its toilet"? Well, it's worth your time. First it washes its hands thoroughly, then its face, then it passes its hands over the top of its head, washing that; also the back of its neck. Next its body is gone over, and finally it carefully finishes by washing its legs from its body clear to the soles of its feet; and now after this thorough renovation do you *dare* call it dirty?

I think somewhere in the A B C of Bee Culture occurs the statement that "bees have a fashion of running through their apartments with muddy feet." Now, this *must* be a matter of "locality." My bees never do that, but, on the contrary, take a great deal of pains to have their feet clean. Pick up a bee by the wings, and put its feet into mud or any other sticky substance, and the first thing it will do after being liberated will be to clean up.

Now, if you want to find out whether the so-called travel-stain is due to the dirty feet of the bees, try the following experiment: Take a board of any convenient size, not less than ten or twelve inches square, and, after thoroughly washing your hands, tack a piece of clean white paper on this board, and place it, paper side up, in front of a strong colony. Do this when plenty of honey is coming in, and the bees are working in the sections. Place this paper close to the entrance of the hive, so that the bees will use it as an alighting-board, and be compelled to travel over it with their dirty little feet. If you are *sure* that your fingers are clean, handling the board by the edges, and will put the board out late enough in the morning, and take it up at night before any dew falls, you will find this paper, so far as the bees are concerned, as clean and white at the end of a long honey-flow as when you first placed it before the entrance.

Where, then, does this so-called travel-stain come from? It is quite difficult to state a disagreeable fact in an agreeable way; and about the only palliative method that I know of is to include one's self in the statement, so here goes: So-called travel-stain has its origin mainly in the dirty or neglectful habits of *us* bee-keepers. If the bee-keeper wishes to have nice white sections of honey, he must, at the time of putting on sections, remove the old bottom-board and put a new one in its place. The stained appearance of cappings is due almost entirely to the admixture of foreign substances, and these are obtained to a great extent from the dirt and litter of the bottom-board. Keep every thing in and about the apiary neat and clean, and you will have no cause to complain about stained cappings.

But some one asks, "Why do cappings of finished sections that are perfectly white become darker if left on the hive?" It is because bees are usually doing something; and the honey-flow having ceased they use the refuse of the bottom-board, and thicken the cappings. Some one has said that the bees daub propolis over the capped sections. Well, if I had a colony that would do this I would kill the old queen and give a new one. Isn't there some other word that, in justice to our friends the bees, can be substituted for travel-stain?

I note that we are to have a new edition of

Digitized by Google

the A B C of Bee Culture. I wish this word "travel stain," and the "muddy feet of the bees," could be revised out of it in some way.
Bradford, N. Y.

[In the new edition of the A B C book, under Comb Honey, there is a newly written article on the subject of travel-stain. I have endeavored to cover in this the main points that were brought out in the recent discussions on that subject, especially the fact that, in the generality of cases, the coloring or foreign matter goes clear through the cappings. I do not relieve the bees of *all* responsibility of having at times dirty feet. I have seen entrances of hives that were pretty badly smeared up with yellow, and have naturally concluded that this yellow was the so-called travel-stain that came direct from the bees' feet. While I have not tried the experiment with a sheet of paper, yet if left there I should expect it would in time be somewhat discolored. We will try the experiment in our own yard, and report the results later.—ED.]

A CASE OF BEE-FEVER.

How to Put Energy into a Slow Poke of a Horse; Closed-end Frames; Queens from Different Breeders.

BY E. W. BROWN.

Concluded.

The season last year was a poor one here as well as in most parts of the country; but with my 40 colonies, and 10 not mine, I produced 3 tons of honey, mostly comb, in plain sections, and increased to 60 full colonies and 5 weak ones. Of course, I had a fair fall flow. When I saw all this honey coming in I began to wonder how I could dispose of it. Dr. Miller says there are two things that bee-keepers are most interested in; 1. How to get a crop of honey; 2. How to get rid of it. I soon decided how I would get rid of my crop. I looked around till I found the best ten-dollar horse in the county. It had but a single fault—it wouldn't go. It would "whoa" better than any other horse I ever saw. After I bought the horse the former owner said that it was just a little inclined to be lazy. Perhaps electricity would be indicated in this case, I thought; and so one day I proceeded to attach concealed wires to the harness in such a way that I could, by pressing a button in the wagon, give the horse a mild electro-stimulus under its tail from a medical induction-coil run by dry batteries. This arrangement proved to be a great success, and it increased the value of the horse 175 per cent. I can now overtake and pass any thing on the road, to the great astonishment of the people who know the past record of the horse. One touch of the button furnishes sufficient ambition for a mile journey. I now seldom have occasion to touch the button, for the horse is nearly cured of its loss of ambition. When I speak it gives two switches of its tail and away it goes. I have made good use of this horse in disposing of my crop; and as I now have an out-apiary four miles away it will be a valuable help to me this coming season.

So far this season I have lost three colonies from diarrhea. These colonies did not have the ends of their combs closed, as I have explained. Some experienced bee-keepers (among whom I can mention James Heddon) take no stock in these "bee-heat" theories; some others (among whom I can mention Capt. J. E. Hetherington) believe that closed-end combs are of considerable importance, in our latitude at least. Some of my colonies which are on closed-end frames are packed in chaff, and these bees show no signs of weakness or diarrhea whatever, in spite of the fact that this has been an extremely severe winter for bees. I use cork-dust cushions on the top-bars, with plenty of ventilation above the cushions, and leave a ⅜ entrance open the full width of the hive. Other things being equal, those colonies with the greatest space under the frames lose the fewest bees.

Now, there is another class of intelligent apiarists (Dr. C. C. Miller among them) who "know" that closed-end frames are best for the *bees*, but "don't know" that they are best for the *bee keeper*, all things considered. Perhaps after I have had more experience I "won't know" any more about it than Dr. Miller; but at present I have so much faith in closed-end frames that I am going to have all of mine made that way until I learn that it is better not to have them thus.

Perhaps a good cellar is the best winter resort for our bees; but not all of us have access to suitable cellars; and then there are such men as C. P. Dadant, with hives weighing less than half a ton, who *must* winter outside.

Speaking of large hives reminds me of my own experience. As I have had but a *limited* experience with 8, 9, 10, and 12 frame hives, and as I am afflicted with bee-fever, my advice is, of course, valueless; however, if you want to know what size I think is best for comb honey I will tell you. Eight combs are too narrow; ten combs are too wide; nine combs are just right. I am inclined to believe that the L. frame is at least an inch too deep for a 9-frame hive. The depth of the frames has nothing to do with the wintering problem unless you go to extremes either way. What appear to be the healthiest colonies I have this winter are in brood-chambers six inches deep.

I have received queens from twelve different breeders. I find that there is a difference in them — in the queens and in the queen-breeders. What seems to be the best queen is from a breeder for whom I have no respect. The queen came hundreds of miles by mail, and cost $1.00 three years ago. Her bees cap their honey *very* white; they are exceedingly gentle; *they waste no time gathering propolis;* they have never swarmed; they are fair to look upon; and last, but not least, they have always produced a little more surplus honey than the best of the other colonies. Where's Doolittle? Say, Doolittle, is this queen not worth $10? I think it was 185 pounds of

Digitized by Google

honey that I took from her hive last year; 150 of it comb honey all in plain sections.

Last season I noticed that this queen had but very little brood in the hive at the close of the honey-flow, and I am afraid she will be superseded this coming season (she is clipped, so I shall know). I want to get another batch of queen-cells from her eggs, and then I should like to exchange her with Doolittle or somebody who can use her. I wrote to the man from whom she came, asking if she was a hybrid, or if she was of a pure race and would be suitable to breed from. He answered my letter, but entirely ignored my question. There seems to be a good deal of mystery about this man, and I have no use for these mysterious people with their wonderful secrets.

I must be wandering from my subject. I was writing about bee-fever, and I guess the thoughts of it brought on an acute form of the trouble. You see I have it pretty bad yet. Just think of it—when my wife wishes to get my attention to tell me something she generally finds it necessary to exclaim "Bees!" Is there no help for me, Uncle Amos?

Eden, N. Y.

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE

BEES—HOW LONG DO THEY LIVE?

Question.—Picking up a paper recently I noticed an item to the effect that bees were very short-lived insects, and that the average life of the worker during the summer season is but thirty days. Can this be the truth? I had supposed that workers lived six or eight months, if not a whole year.

Answer.—It seems to me that no one should be ignorant on this subject when one experiment will tell him the truth in the matter, and convince him that the average life of the worker is about 45 days, or one-half more than was given in the item which the questioner alludes to. Take a colony of black or German bees, for instance, and about the 10th of June take the queen away and introduce an Italian queen, keeping record of the date on which this change was made. In 21 days the last black bee will have emerged from its cell; and if the Italian queen went to laying immediately, the first Italian bee will have made its appearance, which fact should be jotted down also. At the end of 45 days from the time the last black bee came out of its cell no black bees can be found in the colony. At 40 days many will be seen; but they grow less and less each day, so that on the 44th it will be very few indeed that are left. This is for the summer months, but does not apply at all for those of the fall, winter, or spring. The life of the bee seems to depend on the work it does. Thus, when it labors the most its life is the shortest. Hence it comes about that, through the inactivity brought on by the advent of cool and cold weather, the individual bee can live from six to eight months. This is proved by changing the queens as before, only it is to be done this time about the middle of September. Soon after the first of October the last black bee will be out of its cell; but I have often found black bees in such colonies on the 1st of June of the next year, and in one instance there were a few still remaining on the 4th of July; but that year the bees were kept in their hives on account of bad weather very much of the time previous to this. Also, when spring opens there will be a few Italian bees in the colony so treated, which shows that very little brood is reared from October till April, as well as to tell us that more bees die in two months in the spring than during five or six months of winter.

The life of the drone is regulated very largely by the workers, for they are usually driven off or killed by the workers long before they would die of old age. Any sudden cessation in the flow of honey from the fields is often sufficient reason for their being driven out to die, or the killing of them by stinging, if they are persistent in staying in the hive; so it is hard to tell just what age they might attain to, were they allowed to live to "a good old age." Most apiarists think that they would live about the same time the workers do; but I am of the opinion that they are a little shorter-lived. It is a rare thing that any drones are allowed to stay in the hive after the honey-harvest is over for the year; still, we have a few reports of drones which have wintered over, and I have known of a few doing so, and that in a colony having a fairly good queen. But the hive was crowded to its utmost with honey during the fall.

The average life of the queen, where a colony is allowed to stay in a normal condition, is about three years, although some have been known to live five years. They live also in proportion to the work they do, or, more properly speaking, in accordance with the number of eggs they lay, as egg-laying is the only work they do. Under our present system of management the queen is often coaxed to lay as many eggs in one year as she usually would in a tree or box hive in a year and a half or two years; hence most apiarists think that all queens should be replaced, after the second year, with those which have just commenced to lay. However, I do not make this a practice; for I find that, as a rule, the bees will supersede their own queen when she gets to be too old to be of service to them; so I trust the matter to them, believing they are less liable to mistakes along this line than I am.

YELLOW OR MAROON.

Having a little space left I wish to say a word regarding the last Straw, and the editor's comments, found on pages 494 and 495 of July 1st GLEANINGS. What I wrote in the *American Bee Journal* was for the sole purpose of calling out Dr. Miller as to certain points regarding the markings of bees and their purity, which points have been so constantly put that queen-breeders have been classed as "frauds;" but the good doctor only helps the fault-finders in their notions

Digitized by Google

by his answers in the *American Bee Journal*. And then he appeals to you, Mr. Editor, who, like Dr. M., furnish these same fault-finders with a club to knock your own brains out; for parties, during the past, when writing me, have classed *you* with the rest of us as sending out queens that did not give bees as represented; and the reason for this is that bees from imported queens have been classed as *yellow*, which were not yellow, when put to a practical test. To prove your point you appeal to the Standard Dictionary. I have only the Student's Edition of that dictionary, and in that I find, under the heading of "Yellow," this: "Having a color similar to that of the spectrum between orange and green, and resembling that of brass, gold, saffron, etc." As I could not well apply practically the spectrum part, I have just taken a new $5 gold piece I happened to get the other day (don't get one very often, even though we are on a gold basis), a piece of burnished brass, a piece of orange-peel (the dictionary says saffron is a deep orange color), a chestnut (maroon), and a piece of leather (which I send you with this article, so you can see it and put it beside your bees from imported queens if you wish). Now for the result: The three horny segments next the thorax on the bees from my imported stock are *much nearer* the color of that piece of leather than any of the other four colors I took, and that piece of leather is *very much nearer* chestnut (maroon) color than it is to that of brass, gold, or orange. Then, if I am any judge, that piece of leather can not be called yellow in any *true* sense of the word, whether I say, "My, oh my! what is the matter with E. R. Root's and Dr. Miller's eyes?" or not. I have had bees from imported stock that every visitor coming to the yard insisted were nothing but black bees; and only as I would cause the bees to fill themselves with honey, and place them on a window, would they be convinced, when the dark maroon color would be set out more boldly. Dr. Miller's answers in *American Bee Journal* show that he thought Doolittle wasn't "nice" in asking those questions, and that he did it in a censorious way. It would seem that Dr. M. had known me long enough to know that I never write any article for any such purpose as that. Purity, three yellow bands, five-banded golden Italians, etc., have been harped on so much that the masses of bee-keepers have been deceived, or have got a wrong impression, so they have become like the man who buys poultry "marked to a feather;" and when they do not receive something which these claims have caused them to think exists, they are ready to class the sender as a deceiver and a fraud. And I hoped the good doctor would "catch on" and help us queen-breeders by showing that bees from an imported queen are not *yellow* in the true sense of the word, because such a true statement from him would have much more weight than the same statement coming from half a dozen queen-breeders. But the doctor thought me hypercritical, and so drove me to put in this defense of myself and other queen-breeders.

[There is one thing, friend D., that perhaps you have not yet taken into full consideration. In speaking of the color of Italian bees direct from Italy, I referred not to individual bees or queens, but to the average importations we have received of them every year. We have so far this year received from Italy by mail some 75 queens, and have obtained that number direct from the Mediterranean every year for the past twenty summers. The yellow in the imported is darker than the yellow in bees that have been bred in this country for a long time: so far we agree; and to remove any possibility of misunderstanding, we say in our queen catalog, and have reiterated for years, in referring to imported Italian queens, "The queens themselves are a little darker than home-bred queens. . . . The queens as well as the bees are leather-colored." Here we agree again. But in all the hundreds we have received I could not call one of them maroon or chestnut. Here we don't agree. Yellow, however, stands for a variety of shades, and that color much more nearly describes the color of the imported stock than chestnut or maroon; and if you will hunt up a Standard Dictionary with the spectrum you will agree, I am sure. But it seems to me we are in danger of splitting hairs on an unimportant point.—ED]

SWEET CLOVER FOR BEES AND STOCK IN ILLINOIS.

This clover is one that yields a large amount of honey. It begins to bloom in this latitude in the early part of July, usually; some seasons a little earlier, others a little later. By the time white and alsike clover and basswood are going out of bloom, sweet clover is well out in bloom; and where abundant a continuous bloom will be had for securing surplus honey of two months or more. When a part of this clover is pastured or mown for hay, such will bloom the second time, and continue in bloom until after hard frosts. I have seen bees working on this bloom in October, when all other honey-yielding plants were killed with one exception, that being giant white-spiral mignonette, which is sometimes grown in flower-gardens.

Sweet clover stands drouth well, but gives a better yield of honey and pasture with frequent showers. The honey is light in color, but, to my taste, not of as fine a flavor as that from white or alsike clovers or basswood. In the dry regions of the West, sweet clover and alfalfa have proved valuable plants for bees and stock. The hay is largely fed to stock. Here cattle pasture on it freely, and the hay has seemed to give good satisfaction, as stock soon learn to like it.

This plant should be grown in all waste places, and thus take the place of the noxious weeds which grow there.

Digitized by Google

For hay this clover should be cut while the stalks and leaves are a bright green, and before any seed-stalks appear. A large amount is grown on an acre when a good stand is secured.

The plant is not so hard to get rid of when desired as some suppose. When the land is broken up and cultivated the plant is gone, and no further trouble need be feared, any more than from other clovers. Pasturing the field so no seeds mature has the same effect if kept up one or two summers. Some farmers in this State are growing large fields of this clover for feeding to stock in pasture and hay, so I am credibly informed.

In sowing the seed the ground should be made fine and rather firm, as better results are so secured than when the ground is left loose to quite a depth. It blooms the next year after sowing the seed.

DOES ALSIKE CLOVER WINTER-KILL?

My article on alsike clover, which is published in July 1st issue, page 503, was written in February, and its wintering qualities given were up to the past winter. At this writing I am forced to report that it badly winter-killed last winter, as did the white clover where it had been fed down closely last fall, as too many do. Last winter was here the most severe on trees, vines, grasses, etc., that we have known in the 40 years we have lived here. The ground was bare most of the time, and only one or two inches of snow at any time.

I wish to make this correction so that no wrong impression may prevail in reference to alsike clover here. All its other good qualities named on page 503 I have proven conclusively.

Our abundant rains this reason have brought on a fine growth of the clovers, which are now in bloom, but yield little honey so far. Basswood has just closed, and yielded lightly in honey. F. A. SNELL.

Milledgeville, Ill., July 7.

SPRAYING OUT OF SEASON; RESULTS.

Inclosed you will find something about spraying fruit-trees while in bloom, and the results. The same was taken from the Granville *Sentinel*, a local paper of Granville, N. Y., not far from here. Dorset is in Vermont. We know of others not far from here who are spraying out of season. It is high time that we bee-keepers were looking into the matter.

Caldwell, N. Y. F. A. LOCKHART.

IT KILLED THE HONEY-BEES.

As will be seen by the *Sentinel's* Dorset correspondent this week, the spraying of trees with a poisonous solution, in an effort to exterminate the worm-pest, has resulted in destroying nearly all of the honey-bees in that section. One poor woman lost forty colonies.

WORM POISON KILLS HONEY-BEES.

Many of our citizens have been engaged in waging a fierce war upon the worm pest that has attacked the foliage of our shade and fruit trees. The worms have appeared in great numbers. The vermicide in general use is a solution of Paris green and lime. It is only partially successful. An unexpected and serious result has immediately followed its use, so that it is a question whether the worms or the poison can prove the more destructive. Nearly a hundred colonies of bees have proved a total loss in this immediate vicinity. Many more will probably suffer the same fate. As a rule, the class of people thus afflicted can ill afford the loss of these bees. Their income largely depends upon their labors. Foliage of trees in blossom or bloom should not be sprayed with this rank poison. One person, a widow, in moderate circumstances, has lost her entire stock of bees of forty-two colonies. These were in a healthy condition, and, up to the time of the spraying of the trees, were actively at work.

[For two or three years back, just following fruit-bloom, or about that time at least, we have been having some dead brood in our hives. It is not like foul brood in appearance, and always disappears in a short time. We have finally come to the conclusion that it must be the result of spraying when the bloom is in. Most of the farmers in and about our vicinity are intelligent reading people; but it is evident that there is some one or ones who are spraying at just the wrong time, and we shall make an effort to find out who it is. If reason and facts will not stop it we may have to resort to the more powerful arm of the law.

In many States there is no law against spraying during the time the trees are in actual bloom, notwithstanding all the best authorities admit and teach that just as good and better results may be secured before and after the bloom. The bee-keepers of Vermont and the vicinities referred to should bestir themselves to see that there is not a repetition of such work. If it is not ignorance it is ugliness that is at the bottom of it.—ED.]

WELL-FILLED OLD-STYLE SECTIONS.

I see you highly recommend the fence separator and tall sections. I have been having, for two years, as finely filled sections as can be desired, with old-style separators and 4¼ × 4¼ sections. I bore four holes opposite each section, ⅜ inch, for bees to pass through, with good results. A. L. BUTERBAUGH.

Utah, Pa., May 26.

[By boring the holes in the separator, you make of it, in effect, a fence — that is, a separator through which the bees can pass back and forth. You will secure a part of the advantages of the fence system, but not all.—ED.]

STRONG TESTIMONY FOR THE FENCE AND PLAIN SECTIONS.

I have just read Editor Leahy's editorial on "Fence Separators and No-beeway Sections." It leaves me with the impression that this man Leahy must have a slight prejudice against these things. If he can only succeed in convincing all the other honey-producers that it is a sad mistake to use fences and plain sections, then I will be the Root Co.'s only customer for these things. No, gentlemen, it did not worry me the least bit, upon reading this article, to think that I have been and gone and stocked up with 2000 fences, and have just ordered 10,000 more plain sections. If it were necessary for me to buy new fences every year, and throw away the old ones, I am convinced that it would pay me in dollars and cents to do so. Not only this, but if it were necessary to throw away the supers also it would pay me to buy new ones every year,

Digitized by Google

so great are the advantages of the fence and plain section over the old-style section with a beeway part way across the top and bottom.

Sections are bound to shrink after giving to the bees. Bee heat is a very dry heat. Two or three days after the supers are put on the hives I make the round and tighten the screws in the supers, with no disturbance whatever to the bees. This is the secret of getting clean sections—sections that you can put into the shipping-cases without scraping (fall honey excepted in this locality). It will surprise one to see how many times he can turn the screws around a day or two after putting on the supers. It seems the bees evaporate every particle of moisture. Bees are natural moisture-expellers, in summer at least.

Eden, N. Y., June 14. E. W. BROWN.

[We are not worrying about the future of plain sections and fences. They are more than holding their own.—ED.]

GROWING BASSWOOD-TREES FROM THE SEED.

In the fall of 1893 I put some dirt in a pan, and some basswood seeds; then covered with an old mat, and covered the mat with dirt; then left the pan outdoors all winter. In the spring of 1894 I looked at the seed, and not one had sprouted. In the spring of 1895 it commenced to sprout. I planted them out, but the dry weather killed them, and I supposed that was the last of my basswood seed; but in the spring of 1896 there were 40 or 50 of the seed that came up. In the spring of 1897 they came up very thick. It seemed as if every seed grew. Then in the spring of 1898 there were a few more that came up. Last spring I wanted to plant them in a nursery-row, and the seed was still coming up.

My experience is, if the seed is put in dirt in the early fall, and put in the cellar, and kept wet all winter, a few will sprout the first spring, and the next spring most of them will come up; but it has got to be where the mice can't get at them, or they will eat them all up.

The way I like to raise basswoods from the seed is to plant them in drills with peas, then the next spring there will be enough that come up so we can see the rows; then the spring after, most of them will come up.

I had four rows, 26 feet long, that I got over 900 basswoods from, 4 to 6 feet tall. Two or three had blossoms on.

I have no basswood-trees for sale, as I want to plant a grove of basswoods.

Lamont, Ia., July 22. CHAS. BLACKBURN.

[The point made in the above seems to be that basswood seeds may lie in the ground several years, and finally grow. If all these freezings and thawings and length of time are needed to break or rot the hard shell inclosing the seed, may not the whole matter be hastened by cracking the seeds with a suitable machine, or immersing them for a proper period in boiling water or something of that sort? I believe nurserymen practice both methods with certain kinds of seeds that are slow in germinating. Who can tell us about it?—A. I. R.]

THE SERIOUSNESS OF BEE-PARALYSIS.

Dr. C. C. Miller:—In June GLEANINGS I noticed the inquiry of Mr. F. D. McMurry, and your answer thereto. As I have had some experience with bee-paralysis I volunteered to give the gentleman some advice, and wrote in regard to it; but I will copy the letter, as follows:

If you follow Dr. Miller's suggestion, "quite possibly the disease will disappear of itself," and meet with success, well and good; but let me caution you that, if you find the disease appears again next spring, be sure to adopt prompt measures to stop it. I have battled with it since 1894, and, though I tried every procedure that came well recommended, the disease spread until, a dozen years ago, I began to destroy every colony that developed it; and this season, though I lost over half of my bees last winter, I destroyed two colonies that showed signs of paralysis, and hope I have throttled it now. What puzzles me is, how my bees got the disease, as no other bee-keeper is troubled with it. I had obtained some from queens from the East, previous to the advent of the malady in my yard, and am inclined to attribute it to this. How do you account for it in your case? I should be glad to hear.

From the above you will discover the estimate I put upon the gravity of bee-paralysis; and though I do not in the least doubt your experience, and as much as has been said of the disease north or south, the latitudinal danger-line seems not to be very sharply defined. I would beg leave to offer my experience as a caution in advising bee-keepers in this State upon this malady.

H. O. VASSMER.

Excelsior Springs, Mo., June 12.

I am very glad to send this word of caution from Mr. Vassmer. What is true of the disease in Northern Illinois is by no means necessarily true in Missouri, and Mr. McMurry will be wise to consider the experience of one nearer home. C. C. MILLER.

Marengo, Ill.

W. K., Pa.—There is no one species that has been denominated a "bee-bird." Perhaps the nearest that comes to it is the ordinary king bird that sometimes proves to be a nuisance in a queen-rearing apiary, and they, accordingly, have to be shot.

G. W. C., Ohio.—I do not think it would be practicable to prevent the candying of honey by the use of glycerine unless so large a quantity were used as to make it practical adulteration. I would advise you to let the method entirely alone.

J. J. M., Iowa.—In the back part of the A B C book you will find a glossary that gives nearly all the technical terms. If you will consult that you will be able to understand much that is said. Perhaps you have been reading the book too much in snatches. If you read carefully "Hive-making" you will get an idea of many of the technical terms, and to what they apply. Each subject must be read through carefully.

Digitized by Google

SEE special offers on page 592.

BROTHER HUTCHINSON very magnanimously says bee-keepers ought to read *all* the bee-journals, visit other bee-keepers, and attend conventions. From a purely selfish point of view an editor would be inclined to say, "Take only one journal, and that one our own." But Bro. Hutchinson is away above such a spirit, and always was.

SERENADING SWARMS WITH TIN PANS.

A CORRESPONDENT says that the old custom of serenading swarms with tin pans originated from an old act of the English Parliament, giving a person a right to follow his swarm provided he rang a bell, or drummed on a tin pan, to give notice that he (the owner) was after the bees. This old act was passed something like a thousand years ago, and during the centuries since it is evident that the original purpose of the drumming was lost sight of, and that subsequent generations came to the conclusion that the serenading induced a sort of spell on the bees, causing them to cluster so they could be captured.

STORING HONEY IN A SPONGE, ETC.

AN item is going about in the papers, to the effect that bees have been taught to store honey in sponges, and the sponges are then passed through a clothes-wringer so as to squeeze out the honey, etc. Years ago I selected some sponges with holes in them as near the size of honey-comb as I could get, and tried to get bees to store honey in them, but I did not succeed. Bees will store honey in a receptacle only about the size of regular honey-comb. Unless they can crawl into the cell they will not use it for honey. The holes in a sponge that are too small for a bee to enter would make an excellent place for moth-worms where the bees could not get at them. The whole story is no doubt a newspaper yarn, and we hope it will not go the rounds of the papers as many such foolish things do.—A. I. R.

WHY CLOVER AND BASSWOOD DID NOT YIELD NECTAR.

Is there any one among our readers who can tell why, when all the conditions are favorable — plenty of rain, plenty of warm weather, and clover in abundance — it should not yield nectar in the good old-fashioned way? It is true that a good many of the favorable conditions have been lacking in some portions of the country. In our locality we have had all of them, apparently, and yet we may say there is the smallest yield from clover we have ever known. Some days ago I was talking with Vernon Burt about the prospect for basswood. "Why, there is plenty in bloom," said he, "but the nights are too cool." A few days ago, while talking with R. F. Holtermann, he remarked that the showing from basswood in Canada was good, but that it had been too *warm* — that they needed cooler and more moist weather. Well, now, I should like to know what are the best conditions for a secretion of nectar from basswood. If there is any scientist or bee-keeper who is able to give us the solution of these two problems I wish he would answer.

THE PHILADELPHIA CONVENTION.

WE have just received a copy of the program for the national convention of the United States Bee-keepers' Association to be held in Philadelphia Sept. 5, 6, 7, next. The following is the program:

Necessity of Pure-food Legislation from a Bee-keeper's Point of View.—Rev. E. T. Abbott.
Out-apiaries, and Their Management for Comb Honey.—W. L. Coggshall.
Possibilities and Difficulties of Bee keeping in Cuba and Porto Rico, and the Effect of Our New Relations with those Islands on Our Honey Market.—Fred L. Craycraft and W. W. Somerford.
Best Method of Comb-honey Production, with Latest Hive Improvements.—F. Danzenbaker.
Possibilities of Bee keeping.—Address by G. M. Doolittle.
Marketing Honey—Can and Ought We to Control Prices?—P. H. Elwood.
Bee-keeping, and the Source of the Honey Supply in and around Philadelphia.—W. E. Flower.
Foul Brood—Its Detection and Eradication.—N. E. France.
Our Pursuit as Viewed by an Amateur.—F. Hahman.
Why Bee-keepers' Exchanges Fail.—C. A. Hatch.
Bees or Honey—Which in Spring Management?—R. F. Holtermann.
Bee-keeping as a Profession.—W. Z. Hutchinson.
How to Conduct Successfully a Bee-keepers' Exchange.—J. Webster Johnson.
The Fall Honey Crop of Philadelphia.—John L. Kugler.
Organization among Bee-keepers — If Desirable, Why, and How Best Accomplished.—Thomas G. Newman.
Best Method of Extracted-honey Production. — Frank Rauchfuss.
Address by A. I. Root.
Fads, Fancies, and Follies in the Apicultural World. —Hon. Eugene Secor.
The Products of the Bee—Pollen, Propolis, and Honey—W. A. Selser.
Food Value of Honey—Its Adulteration and Analysis.—Hon. H. W. Wiley.
President's Address.—E. Whitcomb.

The "Western Passenger Association" will make a rate of one fare for the round trip plus $2.00. This amount is "added to the rates charged by the other association through whose territory the person may travel." For further particulars apply to the secretary, Dr. A. B Mason, Station B, Toledo, Ohio. While the season has been exceptionally poor, so far as honey is concerned, farm crops generally will be good; and as the rates are very low, owing to the G. A. R. encampment at Philadelphia, there ought to be a good attendance.

CORRESPONDENTS FOR BEE-PAPERS.

EDITOR YORK, of the *American Bee Journal*, says it seems that more than ever before the contents of the bee-papers of to-day are contributed by only a few writers, and that in this respect it is far different from what it was ten or fifteen years ago. This is quite true. Years ago it seemed to be the fashion, or rather, perhaps, the proper thing, to make every

Digitized by Google

bee-paper a sort of "experience meeting." While this is all right and eminently proper for a prayer-meeting, bee-papers are not run for the benefit of the *correspondents*, but for the benefit of the *subscribers* who take them simply for the information they can get out of them. Very many bee-keepers are brimful of practical thoughts and suggestions, but either are not able or are disinclined to commit them to writing; but there are only a few practical ones who can or will put their practical ideas into good readable English, so it has come to pass that comparatively few do most of the writing for the bee-journals; and it remains for the editor or editors to prevent those few from running their followers into ruts. The men who do write should be practical, up-to-date men; nay, more—they should be a little *ahead* of the times; and the editor should rub against those who don't write, by going to see them. In that way he can keep himself out of the ruts.

THE SEASON FOR 1899, AGAIN.

REPORTS have been slowly coming in; but taking them as a whole they do not appear to make out that the season will be any better than was given in our last. For some reason or other many of those who have secured a crop are holding it quietly in reserve, hoping they will possibly be able to "bear" up the market. If there are such, they are pursuing a "penny wise and pound foolish" policy, for now is just the time to get good prices. Later on, when fall fruits are on the market, there will be less demand for honey.

For the last few days we have kept a "tab" of the reports as they have been coming in; that is to say, the clerk who opens our mails, as soon as a letter is received has been making a memorandum of that portion of any letter that referred to the season in any way. The following are the memoranda by States and postoffices:

McIntosh Bluff, Ala. S. W. Very unfavorable honey season.
Safford, Ariz. S. E. No surplus.
Taylor, Ariz. E. Very poor year.
Bakersfield, Cal. S. W. Bees doing well.
Famoso, Cal. S W. Honey is coming in.
Pala, Cal. S. Filling hives very fast.
California. Near mountains, crop good.
Chatham, Can. Crop failure.
Grand Jc., Colo. W. Prospects not flattering.
Palm View, Fla. S. W. Bees doing well.
Bishop Hill, Ill. N. W. Honey total failure.
Hospital, Ill. N. E. Sweet clover booming.
Atwood, Ill. C. Bees doing finely.
Mead, Ind. C. Lots of honey.
Terre Haute, Ind. W. Small crop.
Knightstown, Ind. E. About half crop.
Elk, Iowa. Bees doing finely.
Charles City, Iowa. N. E. Small surplus yield.
Natick, Mass. N. E. No honey in this section.
Sanilac Center, Mich. E. Clover flow not very good.
Chesaning, Mich. C. Honey flow good.
Nirvana, Mich. W. Not much honey.
Bentheim, Mich. Not getting any surplus.
Benzonia, Mich. N. W. White clover poor; basswood good.
Holt, Mich S. Honey crop a failure.
Filion, Mich. E. Bees doing well on clover.
Milan, Mich. S. E. No honey.
Montgomery, Mich. S. 200 lbs. top honey from four swarms.
Fruitport, Mich. W. Bees doing well.
Farwell, Mich. C. Surplus good.
Pease, Minn. E. White clover, basswood, and willow-herb yield splendidly.
Shackelford, Mo. C. Big crop of white clover honey.
Lebanon, Mo. S. W. Surplus good.
Arlington, Neb. E. Oceans of white clover, but bees in a starving condition.
Naples, N. Y. W. Almost no finished sections.
Groton, N. Y. S. Not a full super.
Eden, N. Y. W. No surplus.
Harpursville, N. Y. S. No white clover.
Pamelia, N. Y. N. W. Poorest season known.
Cherry Valley, N. Y. C. Honey crop very light.
Wellsville, N. Y. S. W. Honey crop lightest in years.
Syracuse, N. Y. C. Prospect very poor.
Defiance, O. N. W. Honey failure.
Canal Fulton, O. N. E. Boxes about filled.
St. Stephens, Ohio. N. W. Honey crop light.
Hannibal, Ohio. S. E. No white clover.
Plain City, Ohio. C. Honey crop short.
Camp Chase, Ohio. C. Bees not doing well.
Mechanicsburg, Pa. S. Average per colony 40 lbs. comb honey.
New Lebanon, Pa. W. Season a failure.
Rockton, Pa. C. Not much honey.
New Milford, Pa. N. E. Honey crop very light.
Antesfort, Pa. N. Honey-flow great.
Coronaca, S. C. W. Utter failure.
Paris, Tenn. N. W. Honey drouth.
Hutto, Tex. C. Fine flow of honey.
Clarksville, Tex. N. E. Bees doing no good.
Hutto, Tex. C. Go d flow.
Mexia, Tex. C. Honey crop short.
Uvalde, Tex. S. W. Only 5 gal. from 200 swarms.
Catlin, Wash. S. W. Flowers plentiful, but no honey.
West Bend, Wis. S. E. Considerable basswood, but no clover.
Dilby, Wis. S. W. Very short.
Riverview, Wis. N. W. Honey season good.
Kickapoo, Wis. S. W. About half crop.
Kearneyville, W. Va. N. E. Honey crop light.
Banister, Va. Bees doing well.
Orwell, Vt. W. Bees doing nothing.
Monkton Ridge, Vt. W. Worst drouth ever known.
Vero, Fla. S. I have sold about one thousand dollars' worth of honey this season. H. T. GIFFORD.
Batavia, N. Y. C. My honey crop this season is about 3500 lbs. from 150 colonies, or about the same as last year. F. H. FARGO.
Nipamo, Cal. S. W. 188 colonies, 7100 lbs. honey. Extracted, May 2, 840 lbs.; May 17, 1560; May 31, 2000; June 17, 2700. C. G. MCNEIL.
Dilly, Wis. S. W. Crop very short. GUSTAVE GROSS.

The capital letters N. W., S. E., S. W., C., etc., indicate respectively northwest, southeast, southwest, and central portions of the different States. It will be noticed that in one section of any one State the season may be extra good, and in another portion an utter failure; and one will be surprised to read over the number of favorable reports in the whole list; and yet these are not one-fourth, out of the total.

As has been our custom every year, so it is this year, to allow every honey-producer who has honey for sale the free use of our advertising columns to the extent of five lines of space, one insertion. Those of you who do have honey should make haste to let it be known.

HOW TO CARRY SWARMS OF BEES ON A BICYCLE.

I have secured swarms of bees in sacks this time of year, and carried them on a bicycle. It sometimes happens that a farmer will say a swarm of bees is hanging on a limb a mile or so from our office. It would hardly pay to send a man with a horse and buggy; but with a bicycle and cheese-cloth sack I can very soon have those bees back home and in a hive. The sack should be carried by the upper end, where it is tied. Before the sack is tied, how-

Digitized by Google

ever, the bees should be shaken down to the bottom, and then the string should be secured four or five inches above the mass of bees. I usually carrry the sack in one hand and guide the bicycle with the other.

A year or so ago there appeared an account in our columns of how a very enthusiastic youth, seeing a swarm of bees remote from his home, was particularly anxious to secure the bees and take them. What did he do but remove his pants, tie the legs of them together, shake the bees into them, and rush home? No mention of the fact is made of *how* he got home, or whether he was stung or not, or whether he met any one on the way; but the fact was clearly brought out that the bees were *hived*, and finally developed into a prosperous colony.

Taking this incident as a cue, I do not see why we can not use the cheese-cloth sack in the manner I have described. The body of the sack can be slipped clear up over the cluster of bees as they are hanging on the limb; and, if more convenient, the mouth of the sack can be tied around the limb so as to make it bee-tight; the limb can be cut, and our bees brought home in triumph.

LIGHT-WEIGHT SECTIONS, AGAIN.

IN one of Rambler's Echoes, in this issue, he gives a clip at the practice of selling light-weight sections. If he were to move back to his old State, and go through the regions of Albany, Otsego, and Schoharie Counties, and then take a run through the cities of Albany and New York, I think he would come to the same conclusion that I have; namely, that in these localities the idea of a pound weight seems to be losing ground, and in some places it has been lost sight of altogether. The tendency has been toward a ten cent box—something that can be passed out to the customer at even change, without stopping to figure up ounces and fractions to get at the cost of the honey. Indeed, ¾ and ½ pound sections, when well separatored off, will run very evenly in weight, providing the combs are thin. Then these York Staters have a fashion of sorting and putting up honey in cases both as to grade and as to weight. A well-filled box will usually grade No. 1; a poorer grade and lighter weight will sell at 8 cents.

In some localities it may be that the thin comb works deception on the consumer, causing him to believe he is getting a pound, the usual weight, when really he is getting only 12 ounces. But the more honey is sold by the piece (and the practice is growing everywhere), there will be less and less of deception; and the consumer will come to forget all about pound weights, and will simply ask how much that honey is per box or section — not how much it is by the pound.

Incidentally, it may be remarked that it is going to be difficult to raise the price in good years if we sell by the pound; and honey was priced and sold in 1897 at or below the cost of production. But if honey should be sold by the piece, then the old standard of measure (a pound of honey for 12 cents, we will say) is lost sight of, and a new standard (a box for 10 cents) will be set up, which will practically mean honey at 15 cents per pound, as against honey at 12 cents. Is this dishonest? Not if honey sold by the piece is worth 15 cents per pound, and can not be produced at a profit for less.

WANTED, A $100 QUEEN; MY IDEA OF WHAT A $100 BREEDER OUGHT TO BE.

THAT does not mean that we would pay that amount of money to any one who *thinks* he has a queen worth $100. There have been only a few such queens reared that I know of. One was our red-clover queen that produced bees that would not only gather honey from red clover, but actually store honey in sections when the other bees in the apiary were apparently doing nothing — simply robbing; and after the honey-flow they would keep their combs supplied with honey when the others were starving. The daughters of this queen made remarkable showings for the different bee-keepers over the country; and if we had the old queen herself again, $100 would not buy her. Alley had, a year or so ago, what he called his $100 queen. He sent us one of her daughters; and if we had her duplicate we would not sell her for $50. Her bees were wonderful honey-gatherers, and her daughters were beautiful, uniformly and well marked. Now, perhaps some queen-breeder may think he has a queen that will fill the bill. Perhaps so; but we reserve the right to try her in our own apiary at least one honey-flow before we shall be willing to pay over the money, for we do not propose to take the judgment of somebody else—one who is interested in the sale of such a queen. And another thing: Before the queen is sent we should require her pedigree, the history of her bees as honey-gatherers, and the markings of her daughters. We want something whose bees will outstrip every thing else in the yard by *long odds*.

There are hundreds of individual queens whose bees go a *little ahead* of the rest of the yard. We have them; but we want something very much better. We are at present developing a stock that, next season, will be worth five and ten dollars a breeder; and if we can get our $100 breeder we shall hold her best daughters at $25. Here is the point: If a bee-keeper can, by paying from $1.00 to $1.50 for an untested queen that will bring him, in a good season, $5 00 in clean cash, how much has he saved if he buys a 75 cent queen that will bring him in only $2.00? And yet there is just that difference in the bees of particular queens sometimes.

If that quality can be maintained right along in the bees and daughters of a b eeder, that breeder is worth *money*.

A Jersey, for instance, that can produce a pailful of milk at a milking is worth more than twice as much as some common "barnyard affair" that will produce only half that amount of milk, and yet consume the same amount of fodder, and require the same amount of care. I don't know that we can get our ideal, but if some one can reach the mark there is $100 that is waiting.

Digitized by Google

For what is a man profited if he shall gain the whole world and lose his own soul?—MATT. 16:26.

The Bible is full of warnings against selfishness; in fact, the ruling thought of the whole book seems to be that we shall cherish a kindly love toward those about us, and that we should try to cultivate such a spirit of unselfishness that we shall be glad to see others prosper—yes, glad, even though at times what is their gain may be our loss. We are exhorted to believe that the highest state of happiness comes in overcoming selfishness and greed, and being honest and fair toward all mankind. The text I have chosen seems to be a sort of summing-up of all these admonitions and exhortations. When Jesus, the Son of God, came here into this world and mingled with humanity, the sight of these low selfish feelings seemed to weigh him down with sorrow. The sight of human greed seemed to give him pain, and he plead with humanity to rise above such thoughts and feelings. He spoke parable after parable. He had just been rebuking poor Peter because Peter declared Jesus should be spared the ignominy of the cross. Peter spoke from the human point of view. He could not comprehend that it was God's will that his only Son should endure the cross. After rebuking Peter he turned to his disciples and said, "If any man will come after me, let him deny himself, and take up his cross;" and then he uttered the words of our text: "For what is a man profited if he shall gain the whole world and lose his own soul?"

Just while I am writing, in a neighboring city a great strike is going on. We might almost call it a civil war. The sad thing about it is that for some reason the police and other officers of the law do not succeed in restraining the outlaws. There seems to be a new and unheard-of state of affairs. Bricks and stones are thrown from a crowd, but the police can not make any arrest because they can not find out *who* threw the missiles. Innocent travelers on the street-cars—yes, women and children — have been damaged by these missiles; but the perpetrators of the deed go free because, as they sav, no one knows who threw them. I once asked why crowds were allowed to collect; but I soon learned they dispersed when they saw a policeman approaching, but gathered again when they were sure no policeman was around; and then it transpires that the perplexing state of affairs largely comes about because the rioters have so many sympathizers. The common people, at least a large portion of them, seem to be in sympathy with those who are trampling our laws under foot, and almost *defying* law. We have been told from childhood that laws can not well be enforced unless public opinion and sympathy are back of the law. We have learned that in temperance work. Unless the majority of the people—perhaps we may say of the voters — are friends of temperance, it is very hard to enforce the temperance laws. Does it follow, then, that the majority of our people, or at least a large portion of them, are in favor of mob law? I do not think so; but I do fear that a large proportion of our people are uneducated, especially in the large cities; and a still more serious thought is that perhaps large numbers know but little about the gospel of Jesus Christ. They have but very little comprehension of the grand truths revealed in the Scriptures. In spite of our schools and churches, in spite of the Endeavor Society and similar organizations, we are slipping down, a great part of us, into heathenism. Perhaps I might throw out another little suggestion right here: Whenever you read the names of those who have been arrested for disorderly conduct, you have perhaps noticed that the names are strange and foreign. They are not often Yankee names, and not often American. If you look over Dun and Bradstreet, and notice the names of the saloon-keepers in almost any town you will find these strange long names, oftentimes too difficult to pronounce; and, by the way, I hardly need tell you that the saloons are in close touch with the strikers almost everywhere. They may resent this, and deny it; but it can not well be disputed.

It seems a little strange that these troubles between labor and capital should connect themselves so persistently with the electric railways. Since the strike has commenced in Cleveland, other strikes have been started in other cities, and in the city of New York they have been tearing up the tracks, cutting the trolley-wires, placing obstructions in the way, and defying the police and officers of the law. What does it mean? Why should the great street-railway companies have more of this kind of trouble than anybody else? Is it not possible that it is the natural result of transgressing some one or more of God's holy laws? and is it not altogether *probable* that the employees and employers would feel better if they did not have to work Sunday just the same as any other day? No, that is not fair. They are called on to work *more* Sunday than on any other day; and all *sorts* of railways are making a stronger effort this year than ever before to increase the Sunday traffic. Our great dailies that profess to love law and order — yes, and righteousness too — *boast* of the enormous number of passengers that have been carried on a single Sunday, as if it were something to brag of, that we are opening up trade and traffic on new lines, and that, too, on the very day which we are commanded to remember and keep holy. We have just had proof that the cars *can* stop running on Sunday, for they have shut down on a great many week days in succession, and people got along and attended to business very well. They have been shutting down nights too, because the unruly mobs would not let them run after dark. Now, suppose some particular line should declare they were not going to do business on Sunday. Suppose they should say they wanted a rest themselves, and that they were going to give their employees a rest

Digitized by Google

too. Then suppose they each put their business in charge of men who are in *sympathy* with God's laws. Has anybody any doubt as to what the result would be? They would be respected by the great world at large, and they could feel some consistent respect for themselves. Somebody may urge that such multitudes as they have in the cities could not get to *church* without the aid of the street-cars. Then let us build churches where the people *are*, instead of carrying the people long miles to get *to* the churches. Let us start more missions and Endeavor Societies.

It is possible that the electric cars do sometimes carry a *few* church people; but who will dare to dispute me when I say they carry ever so many more to saloons and on Sunday excursions where drinks are sold? At Chippewa Lake, five miles south of here, we have lately made several arrests, and fined and imprisoned men for selling liquor, keeping gambling-houses, etc. Well, just a few Sundays ago a great excursion came in on the cars, bringing their beer and other liquors; and as they expected our Medina officers would be likely to be on hand, we are told a delegation went along, composed of 75 men. This body of men was to keep watch, and see that no marshal or policeman should come on the grounds. In fact, they threatened violence if they showed themselves or undertook to make any arrests. How far removed is this from an *organized rebellion* against the instituted and approved laws of our land? Of course, no arrests were made, because in our little town there was not a sufficient number of officers, or at least a sufficient number could not be gathered together in time to arrest the law-breakers before they had packed up and got away.

Just now we ought, each and all, to be thanking God for the present prosperity. Everybody is at work; and, so far as I can learn, everybody has good pay. Even a great many people who were almost always out of work because nobody could afford to pay them average wages on account of incompetency, nowadays are having steady jobs. Sometimes I ask those who employ them how they get along; and the reply is, "Oh! I know they do not earn anywhere near what we pay them; but we can not get anybody else; and rather than suffer loss we employ them, thus choosing the lesser of two evils." A few years ago there was a constant lament because there was no chance of getting employment. People tramped from one end of the country to the other to find something to do; but now when there is lots to do, almost *everybody* has a job, and it seems as if the proper thing to do is to unite in thanking God for plenty — yes, for the abundance that seems within the reach of almost every man, woman, and child. Instead of these strikes and quarrels we ought to have a grand thanksgiving day. I do not mean a day for a great lot of us to get drunk, but a day devoted to sober, quiet thanksgiving and praise to God for all these mercies.

In regard to wages, great corporations and large factories are advancing pay when their workmen do not ask it and do not expect it. A great many establishments are giving their employees "happy surprises" in the way of unexpected advance in wages. Why, these things should tend to *diminish* strikes; or if we have strikes they should be easily settled. We now have State boards of arbitration, and they are composed of good men, and they have been doing their utmost to do away with the strike in Cleveland; but their efforts seem to be almost unavailing. A few weeks back I suggested that certain people seemed to be, in these modern times, possessed of the Devil. Well, just now it looks as if not only individual persons but *whole crowds* were possessed of some spirit of evil. I have just glanced at a Cleveland daily. It stated that the cars were run without much molestation until they passed a factory where a large number of girls were employed. These girls threw bricks and other missiles from the windows. A car was smashed, and human life was endangered. The police visited every floor, and made unavailing attempts to discover who threw the missiles. Now, the most alarming thing in the whole matter, to me, comes in right here: While the policemen were going through the place these girls and women hissed at them and made derisive remarks. I once heard our pastor tell us that, if we could not respect the man who held office, we should respect the office he holds. Now, I do not know just how the law reads; but it seems to me that every policeman and marshal should be empowered to arrest every person who shall treat him with this kind of disrespect — not disrespect to the man who holds the office, mind you, but disrespect for the office itself. These girls or women seemed to say by their actions that policemen, instead of being a safeguard to humanity, are *foes*. Their actions were in the line of anarchy; and it is my impression that, sooner or later, we shall have to take in charge every person who expresses his disgust and want of respect for law, much as when we arrest and punish a man for resisting an officer.

There seems to be a pretty strong element that indicates by its actions it would like to trample law under foot. After these people have got law and all its officers under foot, they have not told us what they would do, but we can guess. Dynamite has been used in Cleveland to destroy property, and also in Brooklyn, N. Y., and other large cities. All of these troubles, if I am correct, come from differences in regard to who shall have the money that is earned, or perhaps in regard to the manner of dividing the earnings of our street railways. When things go on peaceably everybody is rejoicing over this new arrangement for transportation that carries people several miles for only a nickel. Farmers who have horses with nothing to do have told me they could ride to town cheaper on the cars than to hitch up a horse, even if he needed exercise. We have all felt happy to think we could travel so comfortably and so cheaply; and as improvements are being constantly made, these great companies are every year carrying us further and *further* for only a nickel. One great city has already commenc-

Digitized by Google

ed carrying people, and giving transfers, for three cents instead of five; and yet, instead of this thanksgiving that I have been talking about, we are having fierce wars, and blood is being shed, and the greatest part of this war and bloodshed comes over these very electric cars.

It is not in the great cities alone, however, that Bible teachings are forgotten. This greed for gain, and sacrificing reputation and every thing else for gain, seems to be everywhere. Let me give you one illustration: The postmaster in a town of moderate size received quite a good salary; but instead of doing the work himself he was permitted to have two young women for assistants. Although he had quite a comfortable salary these young women who did the work had quite a small one. As the business of the office increased the girls asked him if he did not think they ought to have a little better pay. He said he agreed with them, and promised to write to Washington and use his influence in getting a better appropriation for them. This he did, but he told them that the increase was not granted. But this was an untruth. The raise in salary *was* granted, but he put the amount in his own pocket, simply giving them their old pay. They had such perfect confidence in their employer that they signed receipts for their pay on a blank, leaving him to fill it out. This thing went on for two years, when one of the young ladies wrote to Washington herself, and discovered the true state of affairs. Now, this man, not content with having a big salary when others did the work for him, at small pay too, not content with this injustice, for that is what I call it, he *robbed* these poor hard-working *underpaid* young women, and put the stealings into his own pocket that he might buy more cigars, and possibly drink more beer (or do something still *worse*) with the money. Was this man possessed of a *devil* too? I have never learned that the Devil has any conscience at all, and I presume he has none; but if he *has* he certainly would have been *ashamed* of himself and of his meanness, to be found engaged in such a dastardly work as this. Oh how *foolish* it is to try to get a little more for yourself by cheating somebody else! I fear it is indeed true that, in the United States of America, where young women are better treated (so it is said) than in any other country on the face of the earth, I fear it is indeed true, as I said, that here in our own native land, women are many times allowed to suffer just because they *are* women. If one man should come before some other man, and demand fairness and justice, he would get it simply because his opponent would know he would not submit to being put off or cheated; but if a *woman* should come and make the same protest, and demand her rights, this same man might, and I think does sometimes, say to himself, "Oh! she is only a woman. *She* will not do any thing;" or, perhaps, "She *can't* do any thing, and so I will not bother myself about each other."

Now, when I tell about the sins of humanity I try to look into my own heart and see if I am ever guilty in a similar way. Several times of late, conscience has given me quite a lash right along on this line. Almost every day of my life I am conscious of something or other that has been neglected that really ought to be seen to. I excuse myself somewhat by saying I am old and partly worn out, and I can not fight everybody's battles as I used to do when younger. Well, perhaps I am somewhat excusable along this line; but where conscience lashed me is right here: When I read my letters, as they come in the mails, I never look to see who the writer is till I get clear to the end. Well, oftentimes of late I am urged to take in hand something that needs to be done. A letter is so eloquent, and the matter is stated so fairly, that I say to myself, "Well, now, I will drop every thing else, and get at this thing right straight, and do what I can to have it righted." But perhaps when I come to read the signature I see it is *Mrs.* somebody instead of *Mr.* Now, while I ask God to forgive me I want you too, dear friends, to forgive me when I confess that, when I see it is "only a woman," I sometimes draw a sort of breath of relief, and conclude I will not do any thing about it after all. Now, what is the reason I do not move with the same vehemence and alacrity when a woman pleads that I do when it is a man? I am afraid, dear friends, to be real honest, it is because I sometimes take it for granted she will not do much about it anyhow, if no reply is made and the matter is dropped. Let me see. What text was it I gave you a talk on quite recently? As sure as you live, it reads, "We that are strong ought to bear the infirmities of the weak, and not to please ourselves." A true gentleman ought to exert himself *more* when a petition comes from a woman, or, if you choose, from a child, than when it comes from a man of wealth and influence. I believe it *is* a pretty good plan to read the letter over carefully before you look for the signature; then decide what you will do, entirely on the *merits* of the case presented, and not because of the one who presents it. How many of us are there who do that way? And, again, how many are there who will promise right here now to put away all bias or prejudice, and do right before God, and not gauge your alacrity according to the standing or influence or person who asks you to do him a favor?

Some little time ago there was a question up about rent. A friend of mine was to have his property put out on the sidewalk in a very few hours if his rent was not paid. I questioned about it, and was told my friend did not propose to pay the rent, because the renter had acted so *mean* about it. I replied:

"Why, don't you pay a just debt, even if a man *does* act mean? I would pay everybody every cent that is honestly his due, without any *regard* to how he has acted. In fact, I do not know but I should be a little readier to pay a *mean* man, for then we could wind the matter up and have nothing further to do with it."

After an arrangement had been made to pay up the month's rent I remarked, "But, look here. You have occupied the premises

Digitized by Google

two weeks since the rent was due. How about the rent for these two weeks?"

The answer came something like this:

"Oh! the premises have been occupied these two weeks because he was making such a fuss about the matter. That is all right. He will not make any fuss about the two weeks. He will be glad enough to get the pay for the month that is overdue."

When I was told this was the customary way of doing things of that kind I remonstrated again; and I have been told that the landlord or landlady, I do not know just which it was, was a good deal astonished because I arranged the rent should *all* be paid, not only for the month that they quarreled about, but also for the two weeks they had said nothing about. Now, my friends, this thing is all wrong. I know something of the many difficulties there are, and the quarrels that come up, in consequence of *renting* property. People who rent all their lives are, I suppose, poor people, and no wonder. The best way to get rich, and avoid paying *any* rent, is to pay every cent you owe to anybody, no matter if he *is* mean. If there is a difference of a few cents, pay it. Better be wronged, by far, than to try to go to sleep at night with the conviction resting on your conscience that *you* have wronged somebody. I suppose there are people who gain a few cents every day by shirking responsibilities. There may be some who manage to cheat somebody else out of a dollar or two every day of their lives; but do people get *rich* that way? Why, one might almost think they would, to take only one view of the matter. The old adage is, "A penny saved is a penny earned;" but it does not say that a penny saved *dishonestly* is a penny earned. It is an easy thing to get a reputation for being small and mean and dishonest, and the man who gets such a reputation suffers. He suffers in a thousand ways. He loses the confidence, friendship, and assistance of his fellow-men. He loses all that is bright and good in this world. He loses happiness; and finally our text tells us he *loses his own soul*; and who will ever be able to tell *all* that is implied and comprehended in these words that our Savior himself once used?

LAGER BEER BY THE MILE.

We clip the following from the advertisement of a well-known American brewery:

When 219 carloads of our beer were shipped to Manilla, the world wondered. What industry was this that shipped its product by a mile and a half of trains to that remote spot?

Yes, indeed, we may well repeat, "What industry is this?" In former times our people had some experience in teaching the American Indians to respect our United States laws. But they very soon made it a heavy penalty for any white man to sell whisky to an Indian. The whole world—or at least a greater part of it—is discussing the right and wisdom of the United States in undertaking to reduce the Filipinos to subjection to our laws. Now, then, what kind of civilization and Christianity is this, to send in intoxicating liquors, not only by the carload, but by the *miles* of carloads, at the very time when we are fighting the savages in a foreign land, and their own land too, as it *seems* to *them?* I am not disputing the right of the United States to subdue the Filipinos; but I *am* disputing the right of the United States to subdue any nation or any people where our people use whisky and firearms at one and the same time.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

GROWING STRAWBERRIES IN A BARREL.

As there has been considerable inquiry in regard to this matter, Mr. J. P. Ohmer, of Dayton, Ohio, the originator of the plan, has sent out a little circular describing the process. Here it is:

Take any iron-bound barrel except those which have been used for pickles, sauerkraut, or vinegar; take all hoops off but four; bore four holes in the bottom. Then space holes around the barrel so that twelve plants will go around it. Five rows high will make sixty plants to the barrel (the fifth row can be placed five inches from top of barrel). Bore two holes, one above the other, and cut out the wood between the two holes. By using a bit 1½ inches, you will have a hole 1½ by 3 inches. When you plant, put the plants as near the top of the holes as possible, to allow some for settling. Use clay ground, well mixed with rotted manure. Put two inches of gravel in the bottom of the barrels to keep the drain-holes from getting stopped up. Put in the dirt till about three inches above the first row of holes. Be careful to have dirt not too wet.

The first row of holes must be 8 inches from the bottom of the barrel. Get in and tramp the dirt solid, then loosen the dirt with a trowel where the plants go; then plant that row. Spread the roots out well, then put dirt about half way up to the next row of holes; then take a common drain-tile, 12 inches long by 3 or 4 inches in diameter; put it in the center of the barrel, and fill the tile with coarse sand; then fill up the barrel with dirt a little above the next row of holes; tramp again. Be careful not to move the tile. Cover up the tile, so as not to get any dirt in it. After planting the second row, lift the tile. See that the sand settles, then fill the tile with sand again, then put in dirt above the next row of holes; tramp again, and plant that row, and repeat the operation until the five rows are planted. *But don't fail to tramp.*

After you are done planting, the tile remains in the barrel; have it empty, so as to take the water. In watering, you water in the tile for the lower rows; on top of the barrel for the two top rows. It would be impossible to water the lower plants without the tile and the core of sand. You can water the plants too much. Fill the tile once per day, and put about two quarts of water on the outside of tile. After cold weather sets in, we quit watering. They want no winter protection. Set the barrel on brick, to keep it off the ground. If any should die in the summer you can replant them by taking a runner and putting the young plant in the hole, and stick it fast with two little sticks.

Use the largest fruiting variety that does well in your locality, and perfect blooming sort, if possible. Planted early in the spring, you may expect a fair crop the same season. Paint barrel any light color, for contrast.

After hearing Mr. Ohmer describe the barrel at the horticultural meeting, he added that no one had better undertake it unless he could attend carefully to all the details, for a little neglect in watering will ruin the whole thing very quickly. Such a barrel is too heavy to carry indoors. It must be wintered right in

Digitized by Google

the open air. Somebody asked him if it needed turning around so the sun could get at all sides. Mr. O. told us if we would get up early enough in the morning we might see that the sun goes clear around the barrel, from morning till night, and actually laps over quite a piece. No turning around is necessary. You can get the finest strawberries in the world by the barrel plan, and more bushels to the acre, that is, if you had an acre covered with the strawberry-barrels, than you could possiby get by any other plan.

OUR NEWER STRAWBERRIES.

Although I have again and again declared I did not want our list of strawberries made any larger unless for some *exceedingly* good reason, I find at least some of the new ones I have seen in bearing for the first time that promise very favorably. The first is the Ridgeway; and if it will grow on my own grounds as I saw it on Wilbur Fenn's, at Tallmadge, O., I shall certainly give it a place. The plant is a remarkably strong, robust grower. The berries ripen a little late, but are remarkable for their size, beauty of shape, and for the fact that they stand away up above the foliage and out of the dirt. Every berry seems to be as perfect, almost, as if it were turned in a lathe. In this respect it resembles the old Cumberland Triumph. Now, this is the way it behaves on cousin Fenn's grounds. Most of us are beginning to learn that the berry that does well in one locality may not in another, even near by.

The second one I wish to call attention to is the Empress, just brought out by Matthew Crawford. I visited his place when most of the strawberries were gone, and the dry weather was fast using up the late ones. The Empress, however, had a magnificent growth of foliage, and green berries and ripe ones were both in great abundance. When I suggested it was a late berry, friend Crawford said it commenced ripening quite early, on the contrary. I know the plant is a tremendously strong and robust grower, because we have it on our own grounds. Now, if it bears everywhere else as it does at Matthew Crawford's place, it is certainly remarkable, because it *holds out* "head and shoulders" above any thing else.

Last, but not least, I wish to call attention to the Hunn. When I asked friend Crawford for the latest berry known, he took me off to a distant part of the field and showed me the patch of Hunns, all green fruit. There was hardly a berry ripe enough to get the flavor, and yet almost every thing else except the Empress was perfectly done for the season. The Hunn is a peculiar-looking berry, but it did not seem to be a very robust grower, perhaps because the ground was too poor where it happened to be located. I should say it is a *good deal* later than the Gandy and Parker Earle in time of ripening. We shall give it a good test next year.

CALLING THINGS HUMBUGS.

I have been trying for five or six years to get a taste of the Japanese wineberry, and I think it has been generally voted a humbug, mainly because it does not stand our winters. Well, a few days ago I had another one of my happy surprises in finding some clusters of wineberries, about as handsome as any thing I ever saw in the small-fruit line; and when I came to taste them, the delicious sprightly acid, with a pronounced raspberry flavor, was *another* one of my happy surprises. A dozen plants came through the severe winter—in fact, one of the most severe winters we ever had—with scarcely an injury. The beauty of the clusters of fruit, together with their delicious, unique flavor, made me feel as though the plant was worth all the time I have fussed with it.

While we are on this subject, here is at least one friend who takes the part of the much-condemned Gault raspberry as follows:

What is the Gault everbearing raspberry doing? I never hear about it any more. I have some of them, and I think they are all right.

Oakley, Ill., July 11. FRANK BAKER.

THE PORTER APPLE — ITS EARLY FRUITING.

I think I have before mentioned the Porter apple-tree that bore two pretty good-sized apples of excellent quality in less than a year after it was put out. Well, the second year—that is, during the present summer — it had eleven very fair apples; and I should call it, judging from these specimens, the best early apple I ever tasted. Can anybody tell me why the Porter apple has not been made more of? Is it a trait of that particular variety to bear so early? Why, the tree that had the eleven apples on is no part of it higher than I can reach. This seems a most desirable trait in an apple-tree, because in an orchard of over 100 trees we did not get any apples worth mentioning until the orchard was almost or quite ten years old. The Porter is a tart apple, similar to the Early Harvest. The shape is a little oblong, and the perfume of the ripe apples is exquisite, even when you are several feet away from the tree. The skin is very thin; color, a beautiful whitish yellow when ripe, and so tender it almost melts in one's mouth. Now, that is *my* description of it. But I am told by nurserymen that the Porter is comparatively well known, and yet nobody has ever yet made any particular fuss about it.

GOOD ROADS.

Medina is one of the muddy counties. In the spring it is no unusual sight to see wagons in the mud up to the hub; and sometimes it requires a good team to pull an empty wagon just a few miles. Last winter, and, in fact, several months before winter, quite a stir was made for better roads. A mass meeting was held; and at this meeting, of course there were certain ones who vehemently objected to putting any more burdens on the overburdened tax-payers—especially the poor farmers. Finally, when there seemed to be a good chance for a regular row about the new roads, somebody started out to see how many voluntary subscriptions he could get for work to fix one of the worst pieces of road in the county

Digitized by Google

ready for a broken-stone covering. To the great surprise of many, the farmers turned out in such crowds that a big enthusiasm was started. Business men, and people from miles away, who did not wish to be outdone, furnished men, money, and horses. The "Burnham Flats" were finished in good style before we knew it, and it did not cost the county a cent. We are now doing the same thing past our own home. Six teams and a large crowd of men are at work to-day, July 26. Nobody can grumble or find fault, because each one does what he pleases, of his own free will.* May the Lord be praised that *good* things are contagious as well as *evil* things! Enthusiasm is spreading in every direction, and stone roads will soon be started out of our town in four different directions; and it looks as if there were going to be strife to see which road will be carried the most miles out into the country. Now, if the work that is being done to-day had been done forty years ago it would have saved in horse flesh, wear and tear of vehicles, etc., who can compute *how* many times the cost of the whole improvement? Farmers and everybody else have taken *days* to move their stuff when *hours* would have accomplished it with the new roads; and last, but not least, our boys and girls can have their wheelrides every month in the year, whether it rains or shines. But a few months ago our people arose in their might and formed a law-and-order committee to stop the illegal sale of strong drink in this town of Medina; and is it any thing wonderful that the crusade against intemperance was almost immediately followed by a like crusade for *good roads?*

I have thought best to give the above in order that the people in other localities where GLEANINGS goes may go to work in like manner to establish good roads; and before I drop the matter, I wish to offer two more suggestions. The first one belongs to Mrs. Root; but she would "scold" if she knew I was going to give her the credit here in print. It is simply this: When you start out with the men and teams to do heavy work during the hot months of July and August, provide plenty of good drinking water for the *horses* as well as for the men. I have just been out to tell the teamsters that they drive, say, a quarter of a mile to our watering-trough, and water the horses about three in the afternoon. They all agreed that it would be an excellent idea, but they said it would take a little time to do it. Mrs. Root is always thinking about the horses in such a time as this, and I presume there are other women who feel just as she does about it—at least I hope so.

The second thing is, to be sure your scrapers, plows, doubletrees, clevises, chains, and every thing, are all on hand in good order before you start in with half a dozen or more teams. A new scraper was just unloaded from the cars. When we came to put it together we found the holes were a little too small for two of the most important bolts. Several teams and men had to stand still while somebody went away for a large round file. If the manufacturer had been on hand while the men fussed to get those bolts in place, I *hope* he would have formed a mighty resolution never to send such a machine to farmers again without knowing that the bolts would all *go* where they belong. Half a dozen teams will do a tremendous amount of work in a day, provided somebody takes the responsibility of seeing that the tools are all in perfect order, so there can be no hitch and a consequent "sitting in the shade" while waiting for things to *be* fixed.

* The only objection to this voluntary work in the way of doing business is that there are always some who are abundantly able, but who will not do any thing if they can avoid it. Such people must be brought into line by personal exhortation. Let the neighbors, a lot of them, go to these objecting neighbors, and in a neighborly sort of way present the importance of the undertaking. If you do it in the right spirit you will get something, at least, from everybody along the route or in the neighborhood. I have just been doing that sort of work, and I have succeeded beyond my expectations. We have become better acquainted with each other, and we are as a neighborhood more united than we have been for years past.

Special Notices by A. I. Root.

THE L. A. W. MEET IN BOSTON.

No preventing providence, I expect to spend a week or ten days in Boston and vicinity somewhere between the 15th and 25th of the present month. If any of the friends would care to see me I might make them a brief visit, if other engagements will permit. I shall probably visit our good friend Manum, of Bristol, Vt.

STRAWBERRY-PLANTS.

We have a very nice stock of potted plants ready to ship at 3 cts. each, by express; 4 cts. each by mail. Nick Ohmer will be double above prices. Please remember our potted plants are sent either by mail or express with jadoo fiber on the roots. Layer plants will probably be ready Aug. 15. It depends considerably on the amount of rain we have, as to whether we can furnish layer plants at the above date at usual layer prices as per our seed catalog.

ONION-SETS.

We are now harvesting our winter onion-sets, and also our Acorn-top onion-sets. Price of the winter, 10 cts. per quart; 50 cts. per peck; $1.50 per bushel. Price of the Acorn-top onion sets, just double the above prices. If wanted by mail, add 10 cts. per quart for postage and packing. There has been some discussion about large sets or small ones. If you get small sets, of course there will be ever so many more in a bushel, and they are less liable to run up to seed. Some of our customers, however, prefer the large sets; and we have some winter onion-sets grown on very rich ground that are almost as large as a small hen's-egg. You can have either kind at the same prices. We are short on American Pearl onion-sets to be planted out in September; but we are trying to make arrangements to purchase some of the Philadelphia growers. Prices will be given later. We have a limited supply of Prizetaker onion-sets. Prices will be the same as for the Acorn-top.

SOWING BUCKWHEAT AND CRIMSON CLOVER IN AUGUST.

The best crop I ever grew was sown August 15. Of course, when sown as late as this there is danger of getting caught by frost; but as buckwheat is a cool-weather plant, it does very much better if sown so as to just escape the frost. Another thing, if you do not get a crop of ripened seed you will have a lot of bloom for the bees, and it is worth all it costs to turn under to enrich the land. If frost kills it, plow under at once and sow it to rye, and plow under the rye in the spring, and put in corn or potatoes or whatever you choose. We still have a surplus of nice buckwheat for seed at $2.00 for a two-bushel bag, bag included. Put in crimson clover with your buckwheat; and when the frost kills the buckwheat the clover will be nicely mulched to enable it to stand the winter; and if put in

Digitized by Google

as early as this in any kind of decent ground it ought to winter over with you as well as it does winter after winter here in Medina. The finest stand of potatoes I ever saw in my life is where we turned under crimson clover while in full bloom in May. Please notice our prices for c imson clover (home-grown) are much lower than prices made by any of the seedsmen—only $2.50 per bushel. This price lasts, however, only so long as our supply holds out.

SWEET-CLOVER SEED WANTED,

We can use either the hulled or unhulled. Mail us sample, tell us how much you have, and we will name prices.

ADVANCING PRICES.

Owing to the increased cost of materials the price of very many goods listed in our catalog will have to be advanced more or less. We expect soon to begin publishing in this department the advance prices for next season, and these advance prices will take effect when published unless otherwise specified.

Window-screen wire cloth is advanced ½ ct. a foot, making cut prices 2 cts. a foot, and full rolls 1¼ cts. per sq. foot. Standard wire nails advance 2 cts. per lb.; 15 cts. per 10 lbs.; $1.50 per keg. Fine flat-head nails, advance about 20 per cent. Double-pointed tacks, advance 5 cts. a lb. Record lever-seal pails, advance 2 cts. each over catalog price. Square cans, advance 1 ct. per gallon, which makes boxes of two 5 gal. cans $7.00 for 10 instead of $6.00. Still further advances will likely occur in these and other articles.

Queens, Queens, Queens.

We are headquarters for Gray Carniolan and Golden Italian queens. Untested queens, 65c; tested, $1.25; select tested, $2.25. Satisfaction guaranteed. Never saw foul brood. For prices on large orders, nuclei, full colonies, and imported queens, write for free descriptive price list.

Testimonial.

MEDINA, OHIO, May 29, 1899.

Gentlemen:—The nucleus of Carniolans you sent us came to hand promptly, in fine order. Have examined them nearly every day and find them very gentle indeed. Have a colony of select Italians, and in some respects the Carniolans seem easier to handle.

Yours truly, THE A. I. ROOT CO.,
Per A. L. Boyden.

F. A. Lockhart & Co., Caldwell, N. Y.

QUEENS! QUEENS!

Untested Italians, 50c each; tested, $1.00 each. Queens large, yellow, and prolific. Address

E. W. HAAG, - - CANTON, O.

FOR SALE.—Five acres *choice* improved land inside corporation of 1200; also residence and two lots, 146 colonies Italian bees and fixtures, one trained bloodhound and five pups. Reason—change of location and occupation on account of sickness.

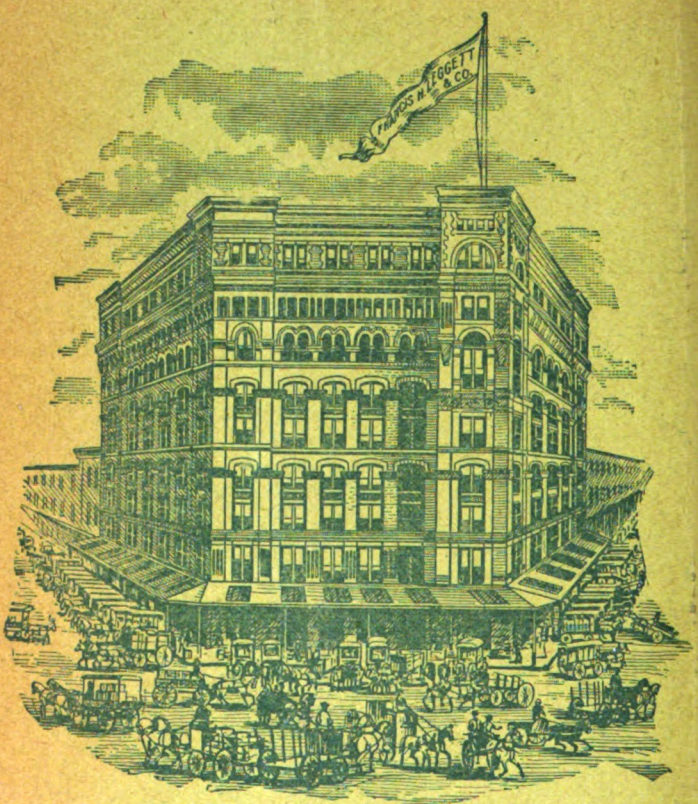
Address ELIAS FOX, Hillsboro, Wis.

Digitized by Google

FRANCIS H. LEGGETT & CO.,

WEST BROADWAY, FRANKLIN AND VARICK STS.,

NEW YORK.



Wholesale Commission Department.

Maple Sugar, Maple Syrup, Beeswax, Honey.

CAR LOTS A SPECIALTY.

HONEY Our statistics show an ever growing demand for honey among consumers, and we anticipate a period when honey will be as common and necessary a dish upon dining tables as butter is now. Our enormous dealings in honey have constrained us to separate this product from our general stock of foods, and organize a

HONEY DEPARTMENT in which we handle honey by the crate, barrel or carload. We purchase from the producer only, for our own account for cash, or receive honey upon consignment, under limitations of selling prices, with liberal cash advances when requested. Quotations furnished upon application, for any variety or quantity of honey, either buying or selling. We are represented in every state of the union, as well as in many European states. Over one hundred of our men are constantly travelling amongst the retailers and jobbers of groceries in the United States. In this way we find an outlet for all grades of honey. We would say to shippers that the market at present is in good shape for new **EXTRACTED** or **COMB HONEY.** We can also market your **MAPLE SYRUP** and **MAPLE SUGAR,** our dealings in these are very heavy. We extend thanks to our shippers for favors of the past, and hope for a continuance of their shipments.

Digitized by Google

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. MEDINA, OHIO

$1.00 PER YEAR

VOL. XXVII. NOV. 1, 1899. No. 21.

STRAY STRAWS FROM DR C. C. MILLER

SOMETIMES it happens that, by some means, some nice sections of honey have their faces so daubed as to be almost spoiled. Put a super of such sections over a hive and take away as soon as the bees have had time to lick off the daub.

I NEVER used a sheet of cloth, as mentioned by Capt. Hetherington, p. 750, to cover honey-cases in a car, but last week I used newspapers, tacking them lightly on the cases. The cloth has the advantage that it is all in one piece Perhaps better than either would be manilla paper pasted together.

MR. EDITOR, if you think it for the general good to have your program arranged to shorten up the spelling thruout the whole catalog of words ending in *ue* and *ugh*, I'll try to bear it manfully, even tho it does sometimes jolt me in reading. But, say; won't it leave the word rather short if you drop the final *ugh* from the interjection "ugh"?

YOU CAN NOT give the absolute weight of any section of a given size, for one year it will be heavier than another. But I can give the relative weights of three kinds of sections for this year.

5676 beeway	4¼×1⅞	averaged	14.94 oz.
442 plain	5×4¼×1¼	"	13.82 oz.
345 "	4¼×4¼×1½	"	13.83 oz.

THE SHIELD of a Crane smoker became unriveted for me, as mentioned p. 754, but I had hardly thought of it as a fault, for the shield did just as good service after it was loose. The shield of the Crane smokers, and also of the Corneil, are not only double riveted for 1900, but have washers that enable the rivet to maintain a stronger hold upon the metal of the shield.—ED.]

THE ANNOYANCE of having inky drops fall from the nozzle of the smoker upon nice white sections is sometimes very great. I never really knew how to avoid it until lately Critic Taylor of the *Review* said to use very dry fuel. Simple enough! There can't be any drops of dirty water unless the water comes out of the fuel. But I never was bright enough to think of it.

RAMBLER is making trouble, p. 759, by talking about the longing for the "favored clime" of California; and when he talks about the roses I just feel like getting out of this place where the thermometer goes down to 24° in September. But when I turn to p. 751, and think that in California I might "have to live alone or in the mountains with my bees, as so many California bee-keepers do," I feel content to stay here and freeze. I'd rather have folks than a "clime."

F. GREINER is right about the two distinct faults of the Daisy foundation-fastener, the mussy dripping and the lack of room for the lamp, or, rather, for the chimney, for there's no difficulty about getting a lamp to suit. I have used a tin chimney of just the right height, and don't know of any advantage the glass has. Just a plain tin tube of the proper length and the same diameter as a No. 1 chimney at the bottom might be sent out with each fastener, and in my judgment it would be a good deal better than to change the fastener to take a glass chimney. [The Daisy foundation-fastener has been changed for 1900; and the objections that have been named by Mr. Greiner have been entirely eliminated. I think I had better send you a new plate that you can attach to the Daisy. It is a "daisy" now, I assure you.—ED.]

MR. EDITOR, you talk some pretty good talk on page 753 about being liberal and not judging too harshly. Now, I'm not going to put any mischief into friend Ochsner's head, but I can hardly blame him such a great deal if he should say to himself, "I wonder why in the world the editor didn't talk that same way when a man was talking about taking my favorite sections to some swamp and stamping them out of sight in the mud!" [When friend Ochsner, on page 753, spoke about Orton's saying that the old 4¼ sections ought to be "stamped in the mud," I could hardly believe that he had made any such statement. When I first read the article, preparatory to putting on my footnote, I did not notice it and that is the reason why I made no refer

Digitized by Google

Doolittle's "Scientific Queen-rearing"

—— Cloth-bound, and the Weekly ——

American Bee Journal for One Year

—— to a New Subscriber ——

FOR = ONLY = $1.50.

Mr. Doolittle's book tells all about rearing the best queen-bees, and the AMERICAN BEE JOURNAL tells—well, we couldn't even begin to tell about the good things it contains for bee-keepers. Send for free sample copy of it if you have never seen it.

☞ We are sending ☜

The Full Report of the Philadelphia Meeting

of the United States Bee-keepers' Association, held last September, to all new subscribers to the Bee Journal for 1900—so long as the copies last. Better subscribe at once if you want nearly 70 copies of the Bee Journal and Doolittle's book—all for $1.50.

Geo. W. York & Co., 118 Mich. St., Chicago, Ill.

G. B. LEWIS CO.,

Watertown, Wis.,

can furnish you with the

Very Finest

Bee-keepers' Supplies

in the World.

Parties wanting goods before new catalog is issued will please write for quotations.

We want every BEE-KEEPER on our list

If you did not receive our catalog last year send us your name and address, and we will mail you our new catalog as soon as it is ready.

FACTS About Bees.

REVISED EDITION.

How to get

GILT-EDGED HONEY

Send 2c stamp to

THE A. I. ROOT CO., Medina, Ohio,

or F. Danzenbaker, Box 66, Washington, D. C.

WM. A. SELSER,

HONEY-SPECIALIST.

WAREHOUSE FOR SALE OF SUPPLIES,
10 Vine St, Philadelphia, Pa.
BEE FARM, - JENKINTOWN, PA.

Here is the Thing You were Looking for the last winter

The New Champion Winter-case

which does away with all unnecessary work, and in which the bees will not die in the coldest winter. Send for special prices on quantity wanted.

R. H. SCHMIDT & CO., Sheboygan, - Wisconsin.

FOR SALE. One trained man-trailing bloodhound 6 pups, 5 months old, bloodhound and foxhound crossed. Address ELIAS FOX, Hillsboro, Wis.

Digitized by Google

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO

VOL. XXVII. DEC. 15, 1899. No. 24.

STRAY STRAWS FROM DR C. C. MILLER

PROPOLIS, according to S. A. Deacon, in GLEANINGS, is just the thing for grafting-wax.

CELLULOID is used in England for quilts, and is well spoken of ; also in place of zinc for queen-excluders.

"THERE ARE SOME who think it necessary to renew brood-combs every 12 or 15 years," says G. M. Doolittle, p. 887. Friend D., some authorities across the water insist on every four years or less I agree with you in believing in combs 50 years old.

THAT FOUL-BROOD CURE of Editor Simmins, given on p. 878, is almost the same, you say, Mr. Editor, as the starvation plan. There is this very important difference, that in the Simmins plan the brood-combs are all saved. [What I meant was that the principle of cure was the same.—ED.]

M. CUVILLIER reports in *Bulletin de la Somme* that he made an Italian and a black colony swap places. The black queen was killed and the Italian unhurt. The same thing occurred in three different trials. According to that, blacks accept a strange queen more readily than Italians.

YOUR CLASSIFICATION of points for bees, Mr. Editor, is good : 1. Ability to get honey; 2. Good wintering ability ; 3. Disinclination to swarm ; 4. Good temper ; 5. Good color. Possibly some other points ought to come in and shove color lower down, as whiteness of surplus combs I rather think I'd want 2 and 3 to change places, making non-swarming come next after honey-getting.

SOME THINK that it is not necessary to quote scripture verbatim. Possibly that might do if every one had a perfect understanding of the meaning of scripture. As it is, it is risky to give any thing but the exact words, and the contrary belief caused the learned Prof. Wiley to make a slip in Philadelphia, when he spoke of the Bible saying man *can* not live by bread alone. The Bible says nothing of the kind. It says, "Man *shall* not live by bread alone." It says, "Thou *shalt* not steal," but it would be misquoting to say, "Thou *canst* not steal."

BROTHER A. I., you've used more than two good pages of GLEANINGS trying to show up frauds, but they'll go right on; for, in spite of all you can say, people will be humbugged—want to be humbugged. But don't be discouraged; once in a while some one will listen to what you say, and it's hard to estimate the good you may do in that way. Besides, it makes good reading for the rest of us.

ISN'T THAT PLAN of tacking a piece of section on a super to mark it, as given by Wm. Muth-Rasmussen, p. 884, better than my plan of penciling on top of sections? When cleaning sections, Philo grumbled no little at my pencil-marks. [The use of section-strips for the purpose of holding records of particular colonies is a very common practice ; indeed, it seemed to me almost universal in my travels among bee-keepers over the United States.—ED.]

TO MOVE BEES a short distance, here's a plan E. R. Jones gives in *Southland Queen* that has a promising look : Choose a day that will be so fair that all the bees will fly (but not in a heavy honey-yield); close the entrances with wire cloth before a single bee has left in the morning. An hour or two later they will be very uneasy, and then move them as nearly as possible at the same time, disturbing them enough to make them fill with honey; then open up all at the same time.

SPEAKING of "cross or snappy" bees, while great industry and great gentleness may unite in the same bee, I'm sorry to say that the rule is that, when I find extra good workers among my bees, they're of the "cross or snappy" kind. [There are exceptions to all rules; but it seems to be the experience of the majority of bee-keepers that honey-getting qualities are very apt to be combined with crossness — yes, generally so. This is partly explainable from the fact that very strong colonies that are prosperous in every sense of the word are more "touchy" than weaker ones, and it is the strong colonies that get the honey. This is something on the principle that a big powerful nation with its millions of in-

Digitized by Google

vestment in battle-ships, armies, and army equipments, is more inclined to bluster than one that is not blessed (or cursed) so much with war equipments.—ED.]

RUMMAGING over the past, I find a question by the "picker" of *C. B. J.*, that I never answered. He wants to know whether a small cluster will not stand freezing if its space is proportionately reduced. Friend Heise, take a box holding a cubic inch, fill it with any proportion of bees and stores, keep it at zero for a week, and see how many bees will be alive. And I suppose they'd be just as dead if the box held 100 cubic in. and was filled.

WM. MUTH-RASMUSSEN, may I guess what your queens are doing in supers when they don't lay there, as mentioned page 884? In most cases they're looking for drone-cells. If you have sections filled with foundation, then they find no drone-cells there; but if you have only small starters in sections, then I've missed. I've known a queen to pass over a brood-comb that had no eggs nor brood in it to lay in a comb that had drone-cells; and I've known a vacant place in a section to be filled out with drone-comb and not a drop of honey put in it when the rest of the section was filled, apparently waiting for the queen to come up to lay there.

"THE REGULAR T SUPER is a general favorite with a large class; but within a few years the section-holder arrangement seems to be getting the larger share of patronage," p. 894. Exactly; and why? Because so large a proportion of orders come from beginners, and they take your word that section-holders are best. Honest Indian, Ernest, if you had said during the same years that T supers were best, how do you think the proportion would have been? [The proportion might have been different; but, say, doctor, the T super is not in my judgment nearly as good an arrangement as the section-holder. Would you have me try to "push" a poorer thing for a better? I may be wrong, but, to be consistent, I must advocate what I believe in.—ED.]

"PUT NO TRUST in drugs for the cure of foul brood" seems to be the watchword on this side the ocean, while on the other side there are constant reports of apparently authentic cures by drugs. Is it not possible that, where the disease has long been known, a degree of immunity prevails among the bees? Again, a strong colony with favoring conditions withstands the disease long, while a weak colony with bad conditions promptly succumbs. May it not be that in some cases the bees come so near resisting the disease that the addition of a germicide will turn the scales in favor of the bees? [Drugs may and probably do have a wonderful effect; but in the hands of beginners they are *worse* than useless. The average beginner, in this country at least, had better not fuss with any method but the drugless cures.—ED.]

DR. MASON shortens "odd" into "od," and Stenog (879) wants it "ahd." Say, Stenog, what principle are you going on, anyway? Would you spell "not," by the same rule, 'naht"? In other words, would you use "ah" to represent short *o*? If so, deliver me from such shorter spelling. [Nothing serious, doctor — simply a joke. Yes, the German word "Naht," a seam, is pronounced just like our word *not*. Our short *o*, as in *on*, is continually represented by broad *a*, as in *all*, in my German textbooks. There is no difference between Olive and Ahliv and Awliv in practice. We can make a slight distinction, but do not in common talk (or *kahmon tok* if you please). I would not use *ah* for short *o*, as it is longer; but in point of sound, one is F sharp and the other G flat—no difference.—ST.]

PUT EMPTY COMBS in moth-proof boxes to freeze, is the advice given p. 890. Never mind the "moth-proof" in this "locality." Mine stay out in hives in the open all winter with free entrance for moths, and after standing thus through the winter it's a rare thing for moths to trouble them the following summer. [Locality! there it goes again. Here at Medina it is necessary for us to render moth-proof hives or boxes holding combs after they are frozen; but in Colorado the situation is entirely different. The moth worm and miller are unknown there. Combs and comb honey may be stored at any time without the least fear of their depredations. Similarly the black bee is not seen in Colorado. Is there any connection between the two, or is it simply because altitude (a mile high) and climatic conditions are unfavorable to the development of the moth-miller?—ED.]

WHAT A FALL this has been! In the last week in November my bees flew four days in succession. Dec. 1 and 2 they were taken into the cellar; and to-day, Dec. 4, it has not been above 25° all day, and the ground is covered with snow. Yes, indeed, I'm glad they're in the cellar.—Dec. 5, 12° above zero. [In and around Denver, during the time of which you speak, there was weather of the shirtsleeve kind — a day with a genuine western dust-storm, another with a snow-storm, followed by weather 10 above zero; but it was remarkable that it was cold and yet it was not cold. It is the low temperature with *moisture* that makes one catch cold and feel chilly; and it is the low temperatrue *with moisture* that kills the bees. For that reason the Coloradoans winter in single-walled hives outdoors, notwithstanding they probably average as many degrees of cold as we.—ED.]

THE MICHIGAN STATE BEE-KEEPERS' CONVENTION.

The next annual session of this society will be held at Thompsonville, Jan. 1 and 2. Reduced rates on all railroads have been secured, and the very low rate of 75 cts. a day at any of the three hotels, providing that two sleep in one bed. Thompsonville is 100 miles north of Grand Rapids, and at the Junction of the F. & P. M. and C. & W. M. Railrords; and, what is more, it is right in the heart of the willow-herb and raspberry country. The President, Hon. George E. Hilton, is leaving no stone unturned to make this one of the best and most profitable conventions the bee-keepers of Michigan have ever had, and all indications point to the fact that there will be a large attendance. One and possibly two members of the Root Co. will be present—J. T. Calvert and perhaps A. I. Root.

Digitized by Google

Says yellow bee, "When I was young,
And worked for A. I. Root,
The nicest gift in all my sock
Was a well-formed baby foot.

CANADIAN BEE JOURNAL.

The December number is a beautiful one on account of 16 pictures of prominent Canadian bee-men which grace its pages. The sturdiest-looking one among them seems to be Wm. Couse, and yet in another place I find he has just left the hospital after a long and dangerous struggle with typhoid fever. The first four shown seem to represent the Ontario B. K. A.; the next six, the Brant Co. B. K. A.; the remaining six are connected with the Ontario Agricultural Experiment Union. This is the best showing of bee-keepers I have ever seen in one issue of a bee-journal. Thanks, Mr. Craig.

In my last Pickings I adverted to the fact that Mr. Taylor was skeptical as to the foundation used in contrast with the Weed. Quite in line with what I surmised, Mr. Shaver says:

Critic Taylor, in the *Bee-keepers' Review*, has made some statements regarding my experiment with the old and new process foundation, as written in the *Canadian Bee Journal* and copied by GLEANINGS. He says that the ordinary foundation which I used "has no pedigree." I am not at liberty at present to disclose the name of the manufacturer of the ordinary foundation, not having obtained his permission; sufficient to say, he is well and favorably known among the Ontario bee-keepers, and has a reputation for the production of section foundation. I shall be very pleased indeed to forward a sample of the foundation used, to Mr. Taylor or any others who may be interested. Let me also here state that my experiment was conducted without prejudice, and given out in the interests of bee-keepers. JAMES H. SHAVER.
Cainsville, Ont.

The question seems to be discussed in Canada, whether the Ontario B. K. Union shall buy the *Canadian Bee Journal*, and run it as an organ of that society, or simply speak through it as a private enterprise. While "locality" might have something to do with such matters, generally speaking a journal is better in private hands. Nothing can be more dismal than religious and political journals owned by large societies.

The printer, by a funny division, makes the writer of Notes and Pickings say, "The production of honey-dew by ap-hides and other insects is a fact fully established." You mean aph-i-des (*af-i-deez*), Mr. Typo. What wondrous things sometimes *hide* in a little word!

Credited to the Hamilton *Spectator* I find the following:

William McEvoy and E. Dickenson, two enthusiastic bee-men of Wentworth County, are rejoicing over the results of the sale of a big honey shipment they made some time ago to Liverpool. The shipment amounted to 10,000 pounds, and was handled by commission men, the profit to the shippers being about nine cents per pound after all expenses were met.

I infer this was comb honey.

AMERICAN BEE-KEEPER.

Jamaica has 4207 square miles, and is 90 miles south of Cuba. It has a population consisting (1891) of 14,692 white; 122,000 hybrids; 488,700 blacks; 110,116 coolies; 480 Chinese. The country is too small to be a competitor of American bee men. It belongs to England, not Spain. Men's wages is 24 cts. a day; women's, 12 to 18.

Mr. M. F. Reeve gives reasons for spraying grapes at different times. He says the grape-growers have reason to spray when the vines are in bloom. Before growth begins it is necessary to spray in order to kill fungus and mildew growths on the vine. When the leaves start, another spraying is necessary to kill the countless insect enemies that would otherwise kill the leaves. When the fruit begins to set, another spraying is needed to prevent the destruction of the branches. Doubtless there is much in this, and, as Mr. Reeve says, the grape-growers are entitled to a hearing.

Last summer a person writing for the *Am. Bee-keeper* seemed to convey the idea that a tall section is more liable to be broken at the sides than a square one. An explanation from the editor put this in a different light. In answer I asked, "By the way, how should comb honey be served on the table? Some put a little on a dish at each plate, while others put it all on one large dish, and let each help himself. But is not the shape of the whole chunk, as it leaves the section, entirely lost by cutting the comb into smaller pieces? People should be led away from what is a mere whim; but if they insist on the whim, and are willing to pay for it, let them have it." The editorial reply is too good to abbreviate:

"Now, here is another problem into which the matter of "locality" enters with great effect. In the vicinity of Chicago, for example, it appears that a section of honey may very properly be cut and the pieces subdivided, the degree of propriety increasing with each slice, thus reducing the "whole ball of wax" to innumerable pellets of correspondingly less magnitude, while years of life on a bee-ranch, particularly when hot biscuits or pancakes are served therewith, has demonstrated the fact that, with a moderate reserve centrally located on the table, one well-filled section at each plate is quite the proper thing. We have, of course, a few disciples of Epicurus who find one or two sections of nice mangrove very refreshing between meals, but these are the exceptions. Ordinarily one pound of choice honey is sufficient.

That is, in the city enforced economy, under the guise of "style," gives us a cell of honey, or just a taste, while the farm hand is entitled to a whole section—something on the plan of serving coffee in diminutive cups, and half filled at that, and then marking a man as a bore if he, like Oliver Twist, should dare to call for "more."

Mr. Hill, the editor, gives us a fine view of the apiary of John Newton, Oxford Co., Ontario, the boyhood home of Mr. H. It shows an

Digitized by Google

old farmhouse on the left, an orchard and apiary back of it, and in the distance a river, apparently the Thames, winds along. Here Mr. Hill began apiculture under the teachings of that prince of Canadian bee-keepers, J. B. Hall. Here he clipped his first queen, obtaining his skill at the expense of the drones. Quite in contrast with the above is a view of an apiary at Fort Pierce, Fla. It is one of those beautiful dreamy views so characteristic of that land of romance. To show how far Mr. Hill has traveled, he says that, while John Newton has been caring for his bees at the old stand with monotonous regularity, he himself "might have been seen climbing the foothills of the Allegheny range to see the bees poison (?) themselves with mountain laurel; chasing a runaway swarm among the sage brush up and down the precipitous canyons of California; viewing the broad acres of purple alfalfa bloom in the arid West; standing aghast at the oceans of mesquite which stretch away to meet the horizon of Arizona or Old Mexico; camped in some mangrove swamp of South Florida, testing its producing capacity, or tangled in the bell-flower vines of Cuba's south coast." Mr. Hill says further, "The noticeable inclination on the part of some writers to ridicule the *locality* idea is a clear evidence of limited experience. The young man who looks forward to apiculture as his life vocation would do well to receive his training in the country in which it is proposed to operate."

GENERAL CORRESPONDENCE

RAMBLE 179.

Some Practical Appliances for Moving Bees in Hot Weather.

BY RAMBLER.

Our return from the San Gabriel canyon was marked with no unusual features, and again we took up city life; but my mingling with the busy throng was of short duration, for I was interrupted in a few days, and found myself lending a helping hand for the removal of an apiary of a hundred colonies of bees from Cahuenga Valley, near the city, to the mountains of Calabasas, thirty miles distant.

There is a peculiar instance in my traveling companions this time. They are very modest and unassuming men; and, knowing that I am inclined to write about men and things, and particularly about such movements as these, the master of ceremonies desired that I should not mention names. He wanted to just move bees, and not be exposed to notoriety.

Of course, I always try to be agreeable to my traveling comrades, and do comply with their desires, therefore the real actors in the moving episode will appear under fictitious names. There were four of us — three bee-keepers and a dog. I did think of applying the term "doggoned" to the owner, but for short I will use the more expressive term *boss*. The other man was not over-modest about his name, and the original might appear; but after riding several hours with him I concluded that, through some oversight of his parents, he had been misnamed, and so I give him the name of Mr. Gabfast as more appropriate.

The boss, not having many hundreds of colonies to move, believes in moving in light loads, or in loads of not more than fifty colonies. Mr. Gabfast had a good team, and a wagon with a hay-rigging upon it, and with this about fifty colonies were moved, while the boss took with his lighter rig about twenty; and in order to give Mr. Gabfast and me the full benefit of his style of moving bees he insisted upon making a night journey.

Now, it is a real beautiful experience to move bees while pale Luna is shining down upon us, and all nature is quiet. The reflections of the mind turn inward and backward. But mine didn't. Mr. Gabfast held my attention right down to that load of bees. Now, it is not that I wish to find fault with the boss's method of moving bees, but because I think there is a better way than to move during the dead hours of night. Among other things it deprives one of a proper share of slumber, fatiguing horses at an unwonted hour, arousing all of the ranch dogs, and even disturbing the quiet meditations of the ranch rooster. Bees can be moved just as well by daylight, and the difference is all in the method of moving.

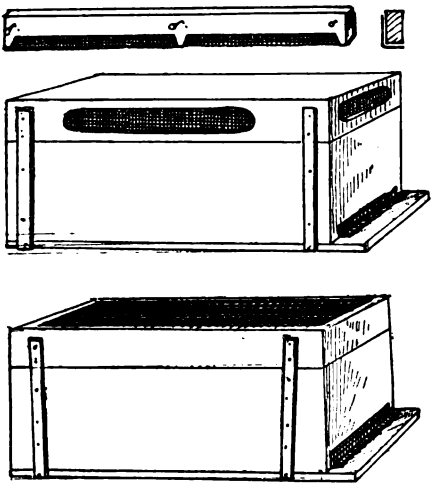
The bees on this occasion were in hives with closed-end Hoffman frames, and there was no need of puttering with spacing-sticks. In fact, a bee-keeper who contemplates much moving of bees should adopt some sort of closed-end frame. Our boss was very sensible in using such a hive. It saves an immense amout of puttering at the outset. The entrances to these hives were of the orthodox order, and clear across the front. Into this long space was thrust a piece of wire cloth cut about 1½ inches wide, and bent V shape the entire length. The spring of the V ordinarily holds the piece from working loose, but our boss took the procaution to drive in a few nails to hold it secure. Screen-wire cloth was placed over the entire top of the hive, with only a bee-space between it and the frames.

If bees are to be moved any great distance in hot weather, and hives are full of bees and brood, when prepared in the above manner they would need to be moved in the night; but quite a number of our bee-men prepare their bees differently, and move at all hours of the day and over long distances. A certain bee-keeper under my own observation in this country moved a large load of bees 60 miles in very hot weather, and at a time when the hives were full of bees and brood, and without the loss of a colony. This success was attained by providing ample space for the bees to cluster or to move freely above the combs. This bee-keeper used a rim just the size of the top of the hive, three inches deep, and covered

Digitized by Google

with wire cloth, and the entrance covered with the same.

Where there is to be much moving, an entrance ventilator should be prepared that can be put on and taken off rapidly, and that can be laid away when not in use, and not become damaged. The best that has come to my notice is the one used by my night companion, Mr. Gabfast, and made as follows:



Take a good sound piece of pine or any other lumber that is not easily split, ¾ inch thick, 1½ inches wide, and the entire length of the entrance, which in this case is the whole width of the hive. Cut out a greater portion of the side, leaving three points as shown in the cut; tack a piece of wire cloth permanently to this, bending the lower portion of the wire cloth to an angle.*

When hives are to be tiered up as was the case with our load, a spacing and holding rack is placed between the tiers, and this gives plenty of ventilation to the under hives.

Another ventilating rim as used by some of our bee-men is made with side ventilation. In this case the rim becomes a box about six inches deep, with a board top, but openings are cut in the sides and ends, and covered with wire cloth. This gives plenty of ventilation, and there is no danger of its being cut off from above.

Then there is still another protection in very hot weather. With the aforesaid ventilation, provide a generous shade — a piece of cotton cloth suspended by a light framework. The air circulates freely under it, while the penetrating rays of the semi-tropic sun are held in abeyance; and still further comfort for the bees is secured by occasionally sprinkling the cloth with water. No one can realize until he has tried it what a soothing effect this has upon the bees. Our boss had such a shade for use in moving, and Mr. Gabfast and I expected that he would order it up when the moon came out in its full effulgence; but the boss had so many things to think of that he forgot this one.

Another factor in the moving of bees successfully is the driver. He should be a bee-keeper. No matter how well made the hives may be, or how particular the owner may be in closing them, some little corner will spring loose in a load of fifty hives, and now and then a bee will be discovered crawling around in the night or flying in daylight. If the driver is afraid of bees, there is consternation at once, and a resultant damage to the bee-keeper. I have known a case where nearly a whole load of colonies of bees were smothered from the ignorant panic that possessed a driver. Get a bee-keeper driver by all means. Of course, there was no panicky feeling about Mr. Gabfast; and, even if he was inclined that way, he did not stop talking long enough to allow the panic to get the upper hand.

About midnight we passed through the little hamlet of Encinas. The quietness of night and a brilliant moonlight prevailed, and the little one-horse hotel and saloon showed out in strong relief against the hills in the background. Close to the entrance there was a watering-trough, and the boss ordered a halt for the purpose of watering the thirsty horses.

Directly over the trough was a board that bore this inscription: "While your horses are drinking, do not forget yourself."

"Why, of course I won't," said I; and I pulled out a cup and drank the beautiful pure water.

"Why," said Mr. Gabfast, "that sign means that, while the horses are drinking water, you must go within and take a drink of beer."

"That's so, Mr. Gabfast; but if I did I should feel that I was more of a brute than these sensible horses. Water is a good enough beverage for the horses and me."

I noticed that the boss was looking at the notice very earnestly, then at the saloon, which was dark and silent. As he drove ahead he kept sending longing glances to the rear. There was an immense live-oak tree a little beyond this saloon, and the boss suddenly decided to camp under it.

"Why, Mr. Boss, we shall have to drive many miles in the sun if we delay here."

* There seems to be something wrong here with the cut, as it coes not tally with the description; and having just returned from my trip it is too late to correct it.—ED.

Digitized by Google

"Yes," said Mr. Gabfast; "the bees will all smother with heat."

"Can't help it, gentlemen; we must camp right here and now."

"That seems to be final, Mr. Gabfast, and we must obey orders. Wonderful, isn't it? what an effect a saloon will have upon some people."

"Yes," said Mr. Gabfast, "and I bet the boss will get back there before we leave camp in the morning. I never saw a man converted so quick from a midnight to a daylight mover of bees."

And, sure enough, the boss had a ready excuse to get back. The horses needed watering again early in the morning. "While your horses are drinking, don't forget yourself." I can not report further, for I did not take one step toward that saloon, and we can only just infer what the boss did.

Contrary to my expectations, we were favored with a high fog all the forenoon, and we safely deposited the bees on the ranch in Calabasas; and while the boss was calling upon the ladies in the neighborhood, Mr. Gabfast and I stretched ourselves upon a pile of blankets, and took a refreshing nap. As a result we felt in trim to have a nice bee-keepers' convention during the long evening.

The boss's cosy cabin, a comfortable fire in the cook-stove, Mr. Gabfast tilted back in a chair with his foot on the upper round, and leg crossed; the boss in a restful position in a rocking-chair, and I in a chair with feet elevated upon a box, the dog snoring under the table, all made a free and easy picture found only on a California bee-ranch.

I told my audience how the bee-keeping industry was to be revolutionized in a very short time; and as it is a very important revolution I will reserve an account of it for the next ramble.

WATERING BEES.

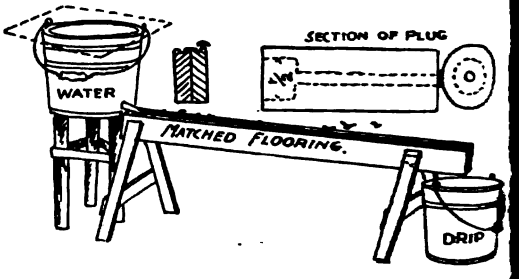
A Cheap Method of Giving Bees Water.

BY MORLEY PETTIT.

The question of water has, until lately, been considered of minor importance. Few apiaries are situated more than half a mile from water accessible to the bees, and many think this enough. Here we are not satisfied with this, however, for several reasons. In the first place, unless there is water in or very near the apiary the bees lose much time in carrying it. During the honey-flow, when breeding is heaviest, they require most water. It is then that their time is precious, and they must be relieved of extra work as much as possible. Two or three pailfuls will provide a hundred or so colonies with running water throughout the hottest day. This can be brought in spare moments, and will save the bees many trips. In early spring, water placed in a sunny sheltered place in the apiary will be used by the bees on days when the wind is too cold for them to venture far. In this way the brood will get water regularly, and be kept in a healthy condition at a time when it needs most care; i. e., in chilly weather. If water is not convenient on such days, many bees will be lost in attempting to bring it from a distance, and spring-dwindling will be greatly increased.

Second, bees often get water from impure sources. Barnyards are often more convenient, or seem more to their liking, than running streams. Standing water tends to become impure as the summer advances. Troughs, boards, stones, reeds, or whatever the bees rest on while drinking, are rendered foul by the droppings of the bees. This filth is carried in solution to the hives, and fed to the brood. This must be injurious, for, since using our present device for watering, we have had much less trouble with dead brood.

Third, many bees are lost by drowning where no suitable place is provided for them to drink. At any pond or trough where bees come for water a number of unfortunate ones will always be seen floating about in the water. I have never watched bees along the margin of a lake or river, but I imagine many must be carried away by waves or current. This, of course, is a drain on the strength of



the hive when every worker is needed. It is also very annoying to stock coming to the water to drink.

Fourth, it is the easiest way of giving salt. By long observation we have become convinced that bees desire and require a certain amount of salt. If they do not get it in pure water they will get it elsewhere. Moisture about barnyards, stables, and water-closets attracts them. They seem to prefer such water, which contains salt, to pure water which is fresh. We have always given a teaspoonful in a pail of water; but this summer my father tried giving more, and found that the bees took the water fully as well with three teaspoonfuls as with one. About a teaspoonful seems to be the amount generally given, however.

For artificial watering, some use an open dish containing water. Sticks, stones, straw, corncobs, or cloths are placed in the water to prevent bees drowning. Others use a board laid flat on the ground, with small transverse grooves cut in the upper surface, and connected in such a way that water can run from one to the other. A fruit-jar filled with water, and inverted over the center of the board, keeps the grooves filled as long as any water remains in the jar. We used this device for several years, and found it quite successful;

Digitized by Google

but as there was no current to carry away droppings it had to be washed out several times daily.

What we have found to be the most complete watering-place is made from a wooden bucket, a piece of matched flooring ten or twelve feet long, and a few stakes. With an inch auger, bore a hole in the side of the bucket as near the bottom as possible. Take a piece of pine and trim the end until it just fits the hole water-tight. Then bore a hole in the end, half an inch across, and an inch deep. In the bottom of this hole make a gimlet-hole, also an inch deep. Now saw off this two-inch piece. This gives a round piece of pine, one inch in diameter and two inches long, having a hole through it lengthwise half an inch at one end, and about the size of an ordinary nail at the other. Use this to plug up the hole in the bucket, putting the end with the large hole in first, and allowing the other end to project for a spout. A nail placed loosely in the gimlet-hole will regulate the flow. Drive three stakes in the ground to form a stand. Set the bucket on these, and a shade-board will complete the fountain.

The piece of flooring placed on edge with the groove up is the trough. Have one end slightly elevated to give a good fall, and allow the water from the fountain to drip into the higher end of the trough, and run along the channel. The whole should be high enough so that a pan or pail can be set to catch the water as it flows from the lower end. Allow the water to flow freely enough to make a good current along the channel. If the bucket and trough are thoroughly washed every morning the current in the channel will provide the bees with clean water all day.

Belmont, Ont., Sept. 9.

COMB FOUNDATION IN SECTIONS.

The Great Advantage of Full Sheets; Importance of Accurate Trimming of the Sheets; How to Fasten.

BY R. F. HOLTERMANN.

In my experience and travels among Canadian and United States bee-keepers I have found quite a few differences in the general methods adopted by the two countries; and in an occasional article which I may find time to write in connection with the new work in which I am engaged I may make reference to some of these differences.

In Canada I know of no well-known comb-honey producer—one whose goods rank as the best produced in the country—who does not use full sheets of foundation in the sections. There may be seasons when the bees will fill a section with a starter as well as a section with a full sheet of foundation; but the successful bee-keeper must lay his plans and prepare his supers and equipments in such a way that the bees can get the best results under all circumstances.

I have made tests with full sheets, starters, and no foundation, in sections in the same super, and with a moderate flow the bees have completely filled all the sections with full sheets of foundation when they had not built a cell in the sections without foundation, and very little more than the foundation in the section with the starter; and from experience and observation I know that this was not an isolated case by any means. Almost any one of experience can tell by the finish of the section whether the bees had a starter or a full sheet to begin on.

I am also firmly convinced that, with full sheets of foundation in the sections, other things being equal, the bees enter the sections more readily, and are less likely to swarm without going into them. This is of immense advantage in the production of comb honey.

A great many are not careful enough in putting comb foundation in the sections. The best and most accurate machinery is none too good in doing this. Take two bee-keepers living side by side, with equally strong colonies, and in other respects on an equal footing, and a little difference in the putting-in of the comb foundation may put one so far behind in the race for a prize that he can never catch up.

The comb foundation that sags the least, and the lower edge of which the bee-keeper knows where to find after the bees have been on it for some time, is the best. With section comb foundation the matter of sagging is not so important; but the Weed process has the least tendency to sag, and I have never made any allowance for this in sections.

The comb foundation needs to be cut absolutely true and accurate. It needs to be of a width that, when suspended in the section, it just hangs clear of the sides; and at the same time, having accomplished that object, it has the least possible amount of room between the edge of the foundation and the side wood of the section; and at the bottom the distance can be a little greater, but it should not be enough to give the bees much thought as to the possibility of being able to pass through.

What is the object of this? If the foundation binds on the sides of the section it is likely to be thrown out of true, and buckle it. As long as this is not done it can not be too close. By being near the wood the bees readily attach the foundation: when further away they not only do not attach it as quickly, but they are likely to gnaw it away and make permanent openings for themselves, which injure the appearance of the comb.

Having seen the argument used as to the value of sections well filled, let me say they have in this country, at least, a very practical advantage over sections not so well filled. Of large quantities of comb honey shipped long distances, when properly packed, I have yet to receive a report of broken-down sections being well attached and the comb well filled to the wood. In case of a jar or fall, the strain is not on the fragile comb between the wood, which can not give, and the weight of the comb and honey. Next, a well-filled and even section sells more readily, and will often bring a higher price in the market. The former alone is a very decided advantage; besides,

Digitized by Google

what a pleasure there is in doing a thing well, and seeing good results from it! How natural it is to follow such a success up with further efforts! This is all right and proper within bounds, and with a proper object; but if it is done with the object of being able to glory over the defeat of others, it would be better for our spiritual welfare if it had never been undertaken.

Those using only starters in sections, especially if the honey-flow is only moderate, will have sections not so well filled and joined to the wood, and the bees will be slower in doing it. Next, it never looks well to have two kinds of cells in one section; and where a starter only is used, the bees are very likely to finish the section with drone comb.

Many will experience a difficulty in putting foundation into sections accurately. There may be better ways of doing it, but I know of no better way of doing it than with a hot-plate machine. In the one-piece section there is a difficulty in connection with putting in well-filled sheets of foundation. When the hot plate is shoved in, and below the top-bar of the section, the foundation then pressed up against the plate, a little of the sheet must be melted. The foundation is then brought up against the lower surface of the top-bar of the section. In this process with the sheet against the bottom of and in the center of the bottom-bar of the section, when the hot plate has been withdrawn and the foundation has been pressed against the top-bar of the section, it must be removed from the bottom-bar of the section a distance at least equal to the thickness of the plate and whatever was melted away from the wax sheet. This is too much to get the best results.

The difficulty can be overcome by placing the board inside the section upon which the foundation rests at an angle, so as to carry the foundation next to the bottom-bar; beyond that bottom-bar the angling position alone gives added room; and when suspended from the top the sheet readily assumes a perpendicular position; and as it does so it nears the bottom-bar and closes the space. With a four-piece section the better way is to fasten the foundation into place before the section is put together. When all is in working order by this method, about 45 sheets of foundation can be attached to the top-bar of the section in a minute.

Brantford, Canada.

ABOUT THE SMOKER.

Ink Dropping from the Nozzle, Caused by What? Hinging the Nozzle of the Crane Smoker.

BY F. GREINER.

The controversy in regard to inky fluid dropping from the nozzle of the smoker makes me think of a certain question one of our teachers asked us boys once at school. From our window we could often see the cars passing by, and on one occasion the teacher said to us, "Which one of you can tell me what it is that comes from the smokestack of the engine?"

"Smoke, of course," said one.

The teacher shook his head. Another boy, after a while, said, "Steam;" but the teacher again shook his head. It was a puzzle to us. At last one of the bright ones called out, "Smoke and steam both," at which answer the teacher smiled and assented.

It is steam and smoke coming from the smoker's nozzle, and the two together seem to form a union, in part condensing in the smoker, filling the nozzle partly with that objectionable accumulation, and, when it comes to the worst, even dropping "ink," a very undesirable substance when coming in contact with our clothing, our hands, or the hive-fixtures. It is the amount of surplus moisture that causes the latter unpleasant feature. The ordinary amount of moisture does little harm, and is absorbed and evaporated. This surplus moisture does not, however, all come from the fuel one may use, I think. It comes also from the atmosphere, which is always more or less charged with it, and I believe the greater part of all the moisture causing the trouble in the smoker is due to this moisture as it is blown by the bellows into and through the fire-box. When I first commenced bee-keeping I had no bellows smoker, and so I constructed a little blowpipe from a tin pepper-box, etc. It proved to be a handy tool indeed in some respects. Both hands were always free to use in manipulating, and at the same time smoke could be administered when necessary. I am quite partial to this little smoker, and I would use it to some extent to this day if it did not have this very annoying feature of dropping this inky liquid in a much intensified measure, owing to the fact that the air, as blown into the fire from the lungs, is much more abundantly charged with moisture than the air we breathe or the air the bellows uses.

At the time, I experimented a great deal with my little smoker, to overcome, if possible, that bad feature; but the condensing would take place at the extreme (and hence naturally the cooler) end of the tube which carried the smoke, etc.; and all my efforts to catch the disagreeable fluid in a separate little cup proved futile.

Since I have adopted the bellows smoker I have had no trouble whatever with "ink" when good fuel was used. Pine sawdust or planer-shavings I regard as the poorest material, filling up the smoker quickly with accumulations, and causing ink to drop. Generally speaking I am not very exacting as to what material I do use as fuel, but make use of the things that are handiest; for instance, planer-shavings, sawdust, and the like; rotten or half-rotten wood; chips and old quilts and phosphate-sacks; but I do not consider it essential to keep fuel for several years to have it as dry as Mr. Taylor prefers. Rotten maple or elm wood or partly rotten wood may be dried sufficiently inside of two or three weeks by exposing to wind and sunshine if taken indoors every night and during rainy weather. So treated it is soon fit to answer as fuel for the smoker, and there will be no ink dropping.

Digitized by Google

The accumulation in the nozzle can not be overcome with the dryest fuel, and must be removed from time to time. A clean smoker works more satisfactorily for me.

Now, Mr. Editor, allow me to say another word or two on the subject of the smoker. I should like to suggest a slight change too. Some six years ago I bought of The A. I. Root Co. a Crane smoker. This I have used since, extensively and exclusively. I have taken it to the out-yards with me; it has been used rather roughly some of the time. It has been the only smoker I had in use, and it is still doing a good business, although the nozzle is getting to be very weak and poor. Last winter I bought six Corneils, and they work very well too, but I do not like the way the nozzle is hinged. Of course, you observe the hinge on the Corneil is on the opposite side from what it is on the Crane. The reason I object to this is, we sometimes rest the nozzle on the edge of the opened hive when blowing smoke in between the slightly raised honey-board or quilt and top of the frames. The pressure or weight is quite often sufficient to cause the smoker to come open, occasionally even letting the fire fall out. If hinged the other way the tendency in this case would be to crowd the two parts rather more closely together, and that would, of course, be preferable. I am in favor of having the hinge opposite the bellows. A corrugated shield would also suit me better.

Naples, N. Y.

[We formerly had the nozzles of all of our smokers hinged in the way you seem to prefer them. There are two objections. One is, that the nozzle falls back against the fire-cup, denting it; and the second is, that when the smoker is being filled the blaze from the burning fuel will very often shoot out at the top and burn the bellows and the fingers. I presume the great majority use planer-shavings — just the very fuel that you condemn; and it is this fuel that blazes and causes trouble with the bellows when the nozzle is hinged opposite.—ED.]

THE HIVE QUESTION.

Why Large Hives are Better for Extracted Honey.

BY L. STACHELHAUSEN.

Some time ago the best size of brood-chamber was discussed very thoroughly in GLEANINGS and other bee-papers, so the matter will seem stale to many readers; nevertheless, I hope it will be interesting to have a summing-up and a more scientific explanation of it, which I will try to give.

We know the bee is 3 days in the egg form, 5 days open brood, 13 days capped brood, 2 days it is not able to work, 16 days does house-work, and about 16 days field work. If the number of eggs laid daily remains the same, we can figure how many young bees are in the hive, if we know how many eggs are laid daily. In this case the colony will remain the same—that is, as strong or as weak as before. An increase of the population is possible only when the number of eggs laid by the queen is increasing; and if this number is diminishing the colony will become weaker. This is important, because, if the population of a colony would remain the same, it would in most cases, during the time when no honey can be gathered, consume what it had stored during the honey-flow.

In fact, a good colony increases the population from early spring up to the honey-harvest, then the colony is getting weaker. In the fall, if some honey can be gathered, a new short increase of the brood can be observed; and in winter, breeding is stopped entirely.

If it is our aim to have as many bees as possible for the harvest, and as few consumers as possible when no honey is coming in, it is only one way to attain it in a given colony; and that is, to increase the number of eggs laid daily by the queen up to the honey-flow, and to the greatest extent. Now it is said, "Why overwork this queen? Two queens would easily lay the same number of eggs." Well, suppose we have two colonies in spring quite alike, covering 8 L. frames. One of them is in a large and the other in a small hive. In my locality the bees have generally commenced brood-rearing Feb. 1, in all my hives. The honey-flow commences at the end of May. For this it is desirable that the queen reach her highest egg-laying capacity about May 1. Consequently we have for the development of the colony 82 days—that is, 4 breeding-periods of 21 days each. If the queen commences egg-laying with 200 eggs daily, and doubles this number in 21 days, we have 400 eggs Feb. 21; 800 March 14; 1600 April 5, and 3200 April 26. For the honey harvest we have, then, 108,000 bees in this hive.

Now, suppose we have the same colony in a hive so small that the queen is cramped as soon as she lays 1600 eggs a day, because she does not find more empty cells, or for any other reason can not lay more eggs. It is plain that from this time on the population of the colony can not increase any more, and we shall have 54,000 bees for the harvest; consequently the colony can gather only half as much honey as the other one.

Here comes in another point which is of less importance. We have reached the highest population in the large hive May 17, when the honey-harvest commences. In the small hive, from April 26, the colony will remain the same; consequently the largest possible population is reached at a time when it was not necessary. In these 21 days 43,600 eggs are laid, and just as many bees die, and are raised without any profit for the colony; they are consumers just as well as the bees raised after the honey-flow. Nature has a remedy for this, but this belongs to another chapter.

During the honey-flow the brood in both colonies is restricted; in the large hive, where we have an overworked queen, probably more so than in the small one. This is a desired condition for the honey crop, because comparatively less brood is to be nursed, and a part of the young bees can build combs and

Digitized by Google

store honey; but it may be undesirable for comb-honey production, and we will speak of this afterward.

When the honey-flow ceases, the colony in the large hive will not be stronger than that in the small hive; and this equality will remain till the end of the spring development. The consumption is theoretically the same in both colonies in fall, winter, and early spring; but during the last 21 days of development one colony kept up the same strength, while the other one doubled its population.

If, in fact, the development of the brood does not occur in this restive way, and if many other influences change the outcome, this will not change the value of the proof. I think I have explained the reasons for the advantages of large hives and prolific queens.

The locality has some influence in this matter. If the main honey-flow is very early, the colony may have no time to develop to such a degree that the queen can lay to her fullest capacity. In this case stimulative feeding in the fall is recommended, to have very strong colonies in early spring. By that not much seems to be gained by strong colonies and large hives, if we do not admit that strong colonies consume less, comparatively, in winter, sometimes even absolutely less than a weaker colony.

If the main honey-flow is very late it is probable that the queen, long before, has reached her highest egg-laying capacity, and the colony may be even weaker, when the honey-flow commences, than it was some time before.

As long as the queen increases the number of eggs laid daily, the number of young bees is increasing also. If suddenly the egg-laying remains stationary, or is diminishing, the number of young bees will still increase during the next 21 days; consequently we shall have a surplus of young bees compared with the open brood, and this causes the swarming impulse. To explain this scientifically would take too much space here. This swarming impulse appears as soon as the queen reaches her highest egg-laying capacity, be this caused by crowding her in a small brood-chamber or by the limit of her fertility. This is the reason why small hives swarm more and earlier than large ones.

With a late honey-flow and small hives the colonies will swarm before the honey-flow commences, and now every swarm and every old colony undergoes a new progressive development. This explains why under some circumstances the swarm and old colony will give more surplus honey than a colony undivided. A locality with very late honey-flow requires quite a different hive and management from a locality having an early honey-flow.

The problem is, always to keep the colonies in a progressive development till the main honey-flow commences, and at this time we shall attain the most strength. The more population we gain in this time the better for the honey crop. During the honey-flow it is necessary to have as little open brood in the hive as possible, for two reasons: The bees raised from this brood are of no use for this season; and, second, if the bees have less brood to nurse, more bees can engage in other work.

WHY ARE SMALL HIVES PREFERABLE FOR COMB HONEY?

Most comb-honey producers say the eight-frame hive has given them more surplus honey than a larger one by their management and in their locality. This seems to be in contradiction to our researches in the foregoing, and needs an explanation.

With the beginning of the honey-flow we set the section-supers on top of our hives; and the main difficulty now is to force the bees into the sections and to induce them to commence work in them. If we can not do this, at least some days of the best honey-flow are lost — may be the entire crop. For this purpose the brood-chamber must be in a certain condition:

1. No empty cells should be in the brood-chamber, because they would be filled with honey; and if the bees have started to carry honey into the brood-nest they become accustomed to it and refuse to go into the sections (Doolittle).

2. If possible the brood-chamber should contain brood exclusively; especially the frames should be filled as near to the top-bar as possible. This needs no explanation.

A large brood-chamber can hardly be in this desired condition. In a very good honey-flow the bees will work in the sections nevertheless; but generally they do not. Dadant recommends two methods for getting a large brood-chamber in proper condition:

1. From early spring, empty combs are given to the colony; by and by, as soon as more room is needed for the brood, the brood chamber is always contracted to the space the queen can occupy.

2 At the beginning of the honey-flow the brood-chamber is contracted to as many frames as are needed for brood.

Both methods did not work satisfactorily with me. The first one is, in fact, the same as recommended by Doolittle. If we want the frames full of brood, the queen must be always crowded. I can not see how Dadant can get more brood than Doolittle by the same management, if the brood-chamber is in proper condition. In fact, in this case he will have a large hive, but will not avail himself of its advantages.

The second method has the disadvantage that the brood-combs are not in proper condition. Every comb may contain empty cells, brood and honey on top, which combs we always select for the contracted brood-chamber. This will not be the desired condition.

Both methods have the disadvantage that some of the sections are over the dummies and not over brood. If the colony has really developed in the large brood-chamber to its fullest extent, the queen will be overworked and will probably not lay as many eggs; as yet some cells will be free for storing honey in them. This state is favorable for the amount of honey stored; but the brood-chamber is unfit for the production of comb honey. This I have mentioned already.

Digitized by Google

With so-called double-deckers a very large brood-chamber is used at the right time. When the honey-harvest commences, only one story is used; that is, the brood-nest is contracted, and thus we have the advantage that the top surface remains the same; but I think we shall hardly find the brood-combs in the right condition to force the bees into the sections.

With a small brood-chamber the queen has never before used her full powers, and is always eager to lay in every empty cell; consequently the brood-chamber will probably be in the desired condition. Because in a large hive the bee-keeper can not get this desired condition, he sacrifices the full development of the colony and the advantages of it. This reduces the honey crop to a smaller extent than a brood-chamber in a wrong condition.

It is well known that in the production of comb honey we have the least trouble, if we use swarms, if they come out at just the right time — that is, at the beginning of the main honey crop. If a colony swarms before this time, neither swarm nor the old colony will be in proper condition for comb-honey production when the main honey-flow commences. How a swarm is used if it issues during the honey-flow is known as Hutchinson's method. Hereby, too, we need small brood-chambers; first, to start the bees of the parent colony into the supers; and, second, to get the swarms at the right time, because large hives would not swarm at all or else too late. By this method the swarm is hived in a contracted brood-chamber; but this has no bearing on our question, because we see the advantages of large hives in the season before the honey-flow.

If a large hive in spring means more surplus extracted honey, and for any reason we can not use this advantage for comb honey, it is a proof that our management is not advanced enough to overcome this difficulty; our problem must be to find out a method by which all advantages are utilized.

I produce mostly extracted honey. Only a few hives are worked for section honey; but for two years I have used a method in accordance with the above theory which I think is worth consideration. In 1898 I got from one hive, managed after this method, 120 filled sections and a number of partially filled ones, while my average crop of extracted honey from the whole apiary was less than 100 lbs. per colony. I will describe this method in my next article.

Converse, Tex.

ALFALFA AND ALKALI WEEDS COMPARED.

BY W. A. H. GILSTRAP.

Few subjects interest bee-keepers more than the flowers by which they are surrounded. We must make a study of the vegetable kingdom to make estimates of our crop before harvest. In the sage counties of this State a practical honey-producer usually forms a fair guess, at least, sooner than is done in this valley in most localities. Most of the San Joaquin honey is from alfalfa, and it is a very unreliable source. As a general thing alfalfa produces most honey with water enough to make a fair growth only. Irrigation enough to make a very rank growth is often detrimental to the greatest honey-yield. Of course, a severe drouth is ruinous. Sometimes there is very little honey secreted during one or more months when alfalfa is in bloom, and no certain reason can be assigned. To say "atmospheric conditions are unfavorable" is a vague expression at best, when we can not see or feel the exact difficulty and call it by name.

It would seem that some plant would be desirable to supplement the alfalfa during unfavorable seasons. Frequently that is easily found in the vicinity of alfalfa; it is alkali weed. This may not be the proper name of the weed; but, being a very common man, I use common names when they are not misleading. Many people call it "sticker weed" on account of the small prickles with which it is covered. One apiarist used to call it "yellow top," but has since adopted the name "golden top." As bee-weed, wild sunflower, goldenrod, and many other plants have yellow, more especially at the top, than the weed in question, there is nothing distinguishing in either of these terms. Alkali weed certainly has the claim of popularity for the weed.

It is probably a relative of the Russian thistle, though not a tumble weed. Both commence their growth in cool wet weather, and make some stock-feed early in the season, especially for sheep and cattle. As the weather becomes warm the growth becomes more rapid, the plant becomes woody, and the spines are such as to protect the plant from ordinary stock.

At this point I will drop the thistle, which is getting too hard and thorny for me, as it was taken up only to explain better the honey-plant in question. These weeds frequently grow as high as wheat before the latter is cut, and sometimes prevent its being harvested, as the weeds would decay in the stack. You need not expect much bloom before July or the first of August except on strong alkali land where the weeds are stunted. Then the golden honey is produced until frost or early rain kills the plant. This year was an exception, as the honey failed about Sept. 23, and our first rain fell Oct. 10. Hardly enough frost yet for you to see. In seven years I have known two failures of this source, caused by drouth.

The flavor of this honey is pleasant, not so sweet as alfalfa, classed as amber or light amber by different dealers. It is too yellow to excel as comb honey, and also granulates quicker than some other honey. These are reasons why it is no more sought after by apiarists.

Had Mr. Wilkin (page 750) known the value of these weeds he probably would not have tied up to alfalfa alone, and would have harvested, very likely, from four to seven times the honey which he reports. In some spots near Famoso, alkali weeds sometimes grow; but to see many thousands of acres turn to a

Digitized by Google

beautiful yellow you had better go further north.

As the weed grows up quite bushy, and is a mass of blossoms resembling wild sunflower in color and shape, and a shirt-button in size, for two or more months, it might seem to be an immense honey-producer, but it is not. Perhaps it would run between 75 and 150 lbs. extracted to the hive all seasons when the weeds grow well. Of course, good management is assumed. As bees will consume probably 100 or 200 lbs. of honey per colony in a year, it is plain to see that we must have some other work for the bees in spring and early summer. But as other honey-producing plants are usually on the same range with it we can get along in that respect.

It is certainly worth something to look at a lot of green weeds in April, and be practically sure that they will make a crop of honey in late summer and fall. I know of no other plant that you can foretell the honey prospects of with such certainty.

From the above it might appear that I consider alfalfa a poor honey-plant. It is the principal honey source in this valley, and is likely to remain so. Mr. Wilkin's report is about as small as you are likely to see. A Los Banos man in the alfalfa-fields made so much money with his bees this year that, to give the figures in GLEANINGS, might give the bee-fever to many. But when we consider that he had 1000 colonies, and they reduced to 850 during the season, his profits do not look so big for a year of high prices. For a locality with a foul-broody reputation, a loss of 150 colonies out of 1000 does not seem strange.

Grayson, Cal., Nov. 9.

SURE OF CROPS.

A Locality Where they Have Them in Northern Michigan.

BY ANTON LEISTER.

Mr. Allen Rice, who lives in Manton, Wexford Co., Mich., a hundred miles north of Grand Rapids, is a farmer and bee-keeper. During a visit to his brother here I got from him his bee experience as follows:

"Don't you have trouble wintering bees so far north?"

"Not unless we are careless, as I was last fall. I had 27 stands, strong, and well supplied with honey for winter. They were all in Simplicity hives. I piled them up in the shop and put cornstalks over them. I neglected to raise the covers a little for ventilation, and lost all but six colonies. They drowned and froze in their own perspiration. Each colony was ready sale at $5.00, and they would have made me 60 lbs. of section honey in a good season, salable at 10 cts. I now have 18 colonies. Some of the original six spring colonies sent out two and three swarms."

"Do you feed your bees in the fall to stimulate brood-rearing, and to make sure of sufficient winter stores?"

"Never. We don't have to. There is always sufficient bee-forage, even in a poor year like this, so that they always have an abundance of natural stores; and our colonies are always strong. From each of the hives that failed to winter I took two gallons of strained honey."

"What kinds of bee-pasture do you have up there?"

"Chiefly basswood, white clover, and alfalfa. There are many basswoods in the forests yet. The white clover is a sure crop every year, as it does not come at intervals, as here. It grows wild as in Ohio. Alfalfa is growing in favor with farmers as cattle feed, and more is sown each year. It makes good honey. It is my belief that our bees get honey from red clover—at least I have seen them at work many a time in the red-clover fields when in blossom. My bees are Italians that came originally from Root's stock."

"Do you extract?"

"Decidedly not."

"Why not? It seems to be the method of most honey-producers."

"Because I believe that this smoking and tearing the hive to pieces, and robbing the stores, disturbs the bees so that they do not work and thrive as well as if left to their natural ways as much as possible. Some of my neighbors extract, and I notice that their bees do not thrive as well as those not so disturbed. I work for section honey only. The sections are put in a box that fits on top of the hive, and holds just 30 sections. The lower part of the hive is never disturbed. I have no trouble about getting the bees to work in the sections."

"What is your average yield of honey?"

"The average yield per hive, year after year, I should put at 60 lbs. of section honey. I have had as much as 120 lbs. from one hive. I have put on an empty case of 30 sections on Monday, and the next Monday have taken it off filled. I have kept bees ten years, and in that time we have had no years that were total failures, though some are not so good as others. This year was a poor one, and the yield was an average of about 30 lbs. per hive, about half the average season's yield. Some of the new swarms made 60 lbs. this season."

"How do you market your honey, and what prices do you get?"

"There is no method or trouble about the marketing. My honey all goes to private local customers. They come to me, and I sell it to them at 10 cents per section, supposed to weigh one pound. I don't advertise nor peddle, nor otherwise solicit trade. I have been asked to ship honey, but prefer to sell at home. My customers all buy for their own use only. I have no trouble in getting rid of half a ton of honey in this way."

"What have you to say about candied honey?"

"People in this part prefer the candied honey. They, as well as I, think that the candied state is the state of being fully ripened, and with the best flavor developed. Melting candied honey destroys much of the fine flavor, and, according to my taste and belief

Digitized by Google

it is not a good practice. Much of our honey candies in the comb. It is fine eating."

Brunswick, O.

THE LONG-IDEA HIVE.

How Constructed and How Used.

BY O. O. POPPLETON.

I am a beginner in bee-keeping, and have the utmost respect for the opinions of Mr. O. O. Poppleton. On p. 727, Oct. 1, is an item regarding the Long-Idea hive. I should feel very thankful to him if he would more fully describe the hive, so that I could make and try one or more, and I am sure others would appreciate the article. W. EMORY.

Avondale, Fla., Oct. 21.

[Mr. Poppleton replies:]

The dimensions of the Long-Idea hive can be varied to suit any style of frame one wishes to use, keeping at least two points in view; viz., that the frames in use in them should be at least two or more inches deeper than is the standard Langstroth frame, and the hive should be long enough to hold as much comb in the aggregate as at least 25 Langstroth frames will hold. These are the essential differences between any simply made standard hive and the Long-Idea.

The hives I have in use are made of four boards 13 in. wide, front and back ones being 36 in. long, and the ends 15 inches. When nailed together the inside measure is 13 in. deep, 13¼ wide, and 36 long. Entrance to hive is ½×12 in the center of the lower edge of the front. The two sides have rabbets in inside of upper edge ½×½, for ends of top-bar of frames to rest in. I use a tight bottom-board projecting in front 1½ to 3. Tight bottom-boards are a necessity with me because I practice migratory bee-keeping, but are not essential. Like the Dadants I prefer the old-style telescopic cover. I couldn't be induced to use any other kind; but these are not essential to this system. Any style of cover works the same on these hives as on any other.

The frames I use are 12 in. square, inside measure; but for Mr. Emory, or any one else wishing to test this style of hive on a small scale, I would advise his using the extra-deep Langstroth or Hoffman frame now being made by The A. I. Root Co. for use in the Draper barns. In case he should ever wish to do so they could be easily changed to the standard size by cutting off bottoms of the end-bars. The dimensions of the hives in case those frames are used would be the same from front to rear as in the Simplicity hive — enough deeper to fit the deep frames, and not less than 30 inches long, inside measure.

One difficulty in testing a small number of these hives in an apiary is in the fact that the deeper frames may not fit in the extractor one may have.

In manipulating these hives I put the brood-nest in the center, then use whatever combs the colony needs on each side, using two division-boards, one on each side of the combs. the hive a glance will let one know whether the colony should have more or less combs, and whatever is needed, whether one or more can be added or taken away without having to add or take away an entire story. Division-boards should not be tight-fitting.

I think the above gives the information Mr. Emory wishes; but if not, I will cheerfully reply to any questions asked through you.

Stuart, Fla., Nov. 6.

GREASY SECTIONS.

Caused by Hot, Dry Seasons, Not by a Poor Queen. Errors in Bee-literature.

BY WM. M. WHITNEY.

Under the head of "Beedom Boiled Down," on page 714 of *American Bee Journal*, the first item that meets the eye is the following: "Errors about bees are found in books of other countries as well as this." Well, that is not at all strange; but there are enough in the books and journals of our own country to command the attention of the careful bee-keeper during the time he may have to devote to study and experiment.

I believe a case in point is under this same heading in the following words: "Then when you find a super of greasy-looking sections you know where to replace a queen next spring." Now, my experience has taught me to doubt the correctness of the position assumed in the above statement. Allow me to illustrate. I have colonies, over which, early in the season, were placed cases of sections; later they were raised and others put under, and in due time I removed the first case, containing nice white capped honey; the second case was raised, and a third put under. When the second case was removed, many of the sections through the middle of the case had a greasy appearance; but the last case of late honey had white cappings.

Now, I had read much that had been written upon the subject of greasy sections, all of which seemed to be along the same line of thought; viz, charging the grease up to the queen, and pronouncing upon her the death-sentence; but why the same queen should give me both beautifully capped sections and greasy ones caused me to stumble at the above theory, and set me to investigating the matter for myself.

Most of my colonies were very strong during the entire honey season, the first and last cases being filled rapidly during comparatively cool weather; but the cases which passed through the dry hot part of August were subjected to quite different conditions. The nectar was necessarily very thick, although there was a very good flow from sweet clover. The bees filled the cells to the very brim, and capped them; the honey, being very ripe before capping, did not shrink as it often does; the hives being very warm, as a matter of course the cappings absorbed a portion of honey—hence the greasy appearance.

You will observe that all such honey is much heavier than white capped honey of the same

Digitized by Google

cubic dimensions, and I find a few customers who, knowing a good thing when they see it, prefer this honey to that of a more pleasing exterior.

I think you will find, on examination of the brood-chamber of a populous colony, that the newly made comb, if filled and capped during the hot dry season, unless it is at the outside, will, almost without an exception, have a greasy appearance. I am not speaking now of travel-stains, which are quite different in appearance, and which any experienced bee-keeper will readily detect.

Now, you veterans in the business, allow a novice to admonish you to hesitate before you "pinch the head" of a queen that has filled your hive to overflowing with bees that can go to the very bottom of the nectar-receptacles in the dryest, hottest season of the year, and store up an abundant supply of sweets "fit for the gods to sip."

I may be wrong, but it seems to me this matter will bear further investigation, and it will disappoint me greatly if the truth does not lie along the lines herein indicated. At any rate, let us have the truth.

It would do my soul good (I will not attempt to disguise the fact) to be able to tell Dr. Miller and some of the other old sages in the brotherhood, something, perchance, they do not know. I should feel that some slight return had been made for the large fund of valuable information they have imparted, of which it has been my good fortune to appropriate no small share.

Kankakee, Ill., Nov. 11.

[You may be right; but it occurs to me just now that I have seen greasy (or what some call water-soaked) sections come from some colonies, and pearly-white ones from others at one and the same time; but I do not remember to have seen water-soaked honey and white honey come from the same hive.

This matter is something that will stand a little discussion; and I should be glad, therefore, to get reports from some of our leading honey-producers. If the queen is never to blame, it is too bad to pinch the heads of otherwise good queens.—Ed.]

CELLAR WINTERING OF BEES, AND THEIR PREPARATION.

BY F. A. SNELL.

That the successful wintering of our bees depends considerably upon the necessary fall work, no one doubts; and this work, or a part of it, should be done during September or October and November. The work for the earlier dates named are to see well to it that the bees are securing food enough in some way to keep up the rearing of young bees, and also the storing of a good supply of food for the long coming winter months and early spring. During September, if no young bees are reared or the queens are not laying, the colonies should be fed enough to secure this desired state. A good supply of good food for winter must never be lost sight of, and a good force of young vigorous bees must also be secured or had if our bees are to be well wintered.

In cellar wintering it is, I think, very necessary to the best success to have the bees housed while the hives and combs are dry, and free from frost, and just after a good flight has been secured. One fall our bees were housed Oct. 29, and other years from Nov. 10 to Dec. 10. It was about twenty years ago that I laid it down as my rule to put our bees in the cellar right after the first good flight our bees had after Nov. 10. Previously I had been caught by leaving them out too late, and the hives became filled with frost more or less, and hives were frozen fast to the stands, and covered with snow, and the combs with frost—a condition not in the least desirable. In such cases the hives, when removed from their stands, came up with a terrible snap, which aroused the bees, causing a general excitement and roaring. Right after a good cleansing flight the bees handle well; combs and hives are dry; and after two or three puffs of smoke are given each hive the bees are quietly lifted from their stand and placed two colonies at a time on a cushioned cart and wheeled to the cellar hatchway-door, and then removed from the cart, and carried to the cellar where stands have been previously placed, upon which to set the hives, and the hives are gently lowered to the stand. The colomies are thus all carried in.

When a full tier of hives is placed on the first rack in the cellar to be used, lath are placed on top of the first tier of hives, and the second tier of hives placed on the lath, which gives ⅜ inch space between the first and second tier of hives. Lath are placed on top of all rows, over which another tier is to be placed. We tier up three hives deep when necessary in the cellar, leaving room between the hives of each row to readily insert the hands in placing and removing hives on and from the stands or racks. The hive-bodies and bottom boards we carry to the cellar; but the hive-covers are left off, and a ⅜-inch-deep frame covered with burlap or carpet is fastened with two ¼-inch screws at the center of each side of the top of hive-body. The bees thus prepared have upward ventilation, and are kept from coming out at the top of the hives in handling.

After over thirty years' trial in the matter of hive ventilation I prefer some upward, as I find the combs keep much dryer, and with little or no mold, while with no top ventilation the inside of hives and the combs would be wet and moldy, with other conditions just as favorable. Damp or wet combs are bad. The honey and pollen are liable to ferment, and thus endanger the lives of the bees from diarrhea, which may result from the bees eating the fermented food. The frames covered with burlap for upward ventilation are placed on the hives some time before the bees are put in the cellar. The racks are also put in the cellar, so that, if an unfavorable change of weather comes, the bees may be soon put in. The month of November, 1898, was so

Digitized by Google

stormy, cloudy, and changeable, that bees had very little opportunity to fly. During the month our bees did not get a fair flight until the 19th and 20th. On the morning of the 21st it looked very threatening, so I secured help and put the bees in the cellar; and before we were through, light showers occurred; and before noon the rain set in and followed it up all day. The next night the blizzard had struck us, and every thing was covered with ice and snow, and was frozen fast, with the wind blowing a gale. Our bees were in the cellar in good shape, for which we were grateful.

I mention the above to show how well it is for us to watch these important points, and be on time in our apiary work.

While in winter quarters our hives tip forward, giving a pitch to the bottom-boards, so if any moisture accumulates in the hive it may, if condensed, run off the bottom-board out of the hive. The sloping bottom-board also makes it easier for the removal of dead bees by the colony, which tends to keep the hives sweet and clean during winter. In the cellar our hive rows are placed so one can pass between the several rows to examine the bees and clear dead bees from the hives and cellar-floor. This we do about once each month, and with little disturbance to the bees. We use a dim light while doing this—just light enough so we can see to do the work. The cellar should be kept free from mice, and we prefer the temperature at about 42 to 50°, and quite uniform. Bees thus cared for should winter well. The cellar is kept dark.

Milledgeville, Ill.

TALL VS. SQUARE SECTIONS.

A Reply to E. D. Ochsner, Page 752.

BY T. K. MASSIE.

Mr. Editor:—In your footnote to my article published on page 681 you say that part of Mr. Vernon Burt's fine sections came from the Danzenbaker hive, and the other part from the regular Dovetailed hive. Then you say, "Both lots, as I saw them, were equally well filled. Indeed, it could hardly be otherwise; for under the same conditions a 4¼ square would be as well filled as one 4×5 tall." Will you kindly tell us what those "conditions" were? Were they such as can not ordinarily be had? It is *facts* we want, without regard to style or size of section.

In one of Dr. Miller's Straws, page 709, he says I should "keep things straight," etc. That's what I tried to do. I meant to say that I do not want a wired frame at all. I also meant to say that I prefer what most people term a shallow frame, without regard to wiring. All the combs in my frames will stand any amount of handling on the "slambang" plan. They were built from starters only, and are as straight and smooth as a board.

Page 753 friend Ochsner says if I "think the fence separators such a fine thing," I "don't know what a good thing is." Don't be irritated, brother. I have tried your plain tin separators and T supers, and discarded them. It is *facts* we are after. I am not "trying to make money out of any new hives and sections," for I have none to sell; neither did I try to "fool" my customers. I simply set up the two kinds of sections side by side, and gave my customers their choice, the facts being as before stated, page 680. For a complete reply to Bro. O.'s article I would refer to pages 749 and 769 to 770 in regard to what the most extensive bee-keeper in the United States has to say. It is not there stated that he uses the fence separator; but I venture the prediction that he does.

Tophet, W. Va., Nov. 1.

[A part of Mr. Burt's 4×5 honey was produced over Langstroth frames. While the conditions may not have been identical, they were near enough so for all practical purposes. I will say that the internal condition of the supers for the tall and square sections was exactly identical, save in size. Capt. Hetherington does not use plain sections or fences. His 4×5 are the ordinary beeway seven-to-the-foot, I think.

As to the matter of trying to "fool" customers, I can not believe that deception, unintentional or intentional, has been practiced on any one. Such talk is a reflection upon some of the best bee-keepers we have. The fact that one's beliefs or practices may be different from some others' is not sufficient grounds for declaring that that one is not honest with his fellow-men. If we can't agree we should at least fight fair.—ED.]

TALL VS. SQUARE SECTIONS.

Another Reply to E. D. Ochsner, Page 752.

BY S. D. MATHEWS.

Mr. Root:—I see in your footnote on p. 754 you invite kind criticism in regard to hives, smokers, and other articles. As Mr. Ochsner criticises the 4×5 plain 1⅜ section and fence separator, I, being a practical comb-honey producer, beg to differ with him. I think he goes a little too far when he says that the G. B. Lewis Co. has sold 10,000,000 4¼ sections and only 25,000 of the 4×5 sections, and that they consider the 4¼ section the best. Doubtless they have no practical experience with either, especially the 4×5, only in the manufacturing of them; and in a few years there will be more of the 4×5 plain sections in use than of any other make. He says, "What a waste it will be to discard the old supers for new ones!" I have done that very thing, and it paid me twofold the first season. I have used both the square and tall sections in all of my apiaries for five years, and I know from practical experience that it will pay to discard the 4¼ section and use only 4×5 sections and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hive.

I have made more honey this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strong-

Digitized by Google

est Danzenbaker hives made me one ton of comb honey, and the ones in the 8 frame Dovetailed hive and 4¼ section made a third less. And when it comes to the sales I get more for the 4×5 sections, and I have no work in cleaning them, which I have to do with the 4¼ sections. I ship them as I take them from the supers. Mr. Ochsner says the American people will naturally buy something new. If that be so I always want something new, because I make honey to sell; and any thing that sells the best and for the most money is what I want out of the bee-business (I guess he is not an American is why he prefers the old supers with 4¼ sections, as he calls them).

I should like to have him ship some of his 4¼ sections to some of our eastern markets, such as New York, Philadelphia, Baltimore, Richmond, and Washington, especially the latter, and put them beside my 4×5 sections, and see how he would get left. I have just received sales for some from there at 16 cts. per section wholesale, and others are selling at from 10 to 13 cts.

He says, again, American people like to be humbugged. Perhaps that is why he uses 4¼ sections with tin separators, as I know I should be humbugged if I used them. He hits American people so hard that I can't think him an American.

I see in your footnote on page 681 you say the square sections would do as well as 4×5 sections under same conditions. What are those conditions? I have a lot of 8-frame hives with Hoffman frames with supers for 4¼ sections for sale cheap, because I know of no condition where I can use them to make it pay me as well as the 4×5 section.

Hamilton, N. C.

[By "same conditions" I mean the same style of section (either beeway or no-beeway, same kind of separator or fence, the same kind of foundation, and the same honey-flow. The absence of any one of these conditions would render the comparison unfair. There seems to be more feeling (or ill feeling, rather) developed over this matter than is necessary. The opponents on either side should let the other fellow have his own preference.—Ed.]

POINTERS ON QUEEN-REARING.

Sealed Brood vs. Unsealed Brood to Coax Cell-building; Making the Cell-cup Bottoms; Giving Nuclei Water.

BY W. H. PRIDGEN.

There has been a hive in use at Creek all this season, divided into three divisions, the division-boards having openings 3 × 8 inches in the center, with zinc tacked over them. Instead of using it as you do, I use it as an upper story, and have had cups accepted in the center apartment while there were cells in the others, as described, so far as cells are concerned, in Jan. 15th Gleanings by Mr. Doolittle. As soon as I read his article it occurred to me that it might be better thus arranged, and would remove the possibility of losing so many cells by an accidental virgin queen.

I wish you would ask Mr. Wardell to make some cups with bottoms the right shape to receive cocoons, and transfer the larvæ with the cocoons, selecting that which is too small to transfer otherwise; give them to bees shaken from combs of brood, having a queen six hours previous, and then 24 hours later give them to his cell-builders, and note the difference, if any, and write me his conclusions. He could also transfer some the same size now used, and leave off the giving of them to queenless bees for 24 hours, and see whether they are accepted as well. The plan suggested mutilates the combs worse, but would save the cells destroyed to succor the royal jelly *a la* Doolittle. Possibly he has noticed the illustrations sufficiently to be able to make the stick used in transferring cocoons.

One is liable to succeed best in the way he wants to do a thing, and that may account in a measure for my success in transferring cocoons; but I should like to have him try it if he has not, as many have reported success by this plan who failed in transferring larvæ only. One man who succeeded by transferring cocoons expressed doubt as to Mr. Doolittle's rearing his queens as he advised others to do.

I now give just hatched queens instead of cells to my nuclei, often during a flow the same day the laying queen is removed, and seldom have one rejected. It not only saves several days' time, as the cells often fail to show up a queen at the appointed time, but there is nothing about the work that I enjoy more than distributing fine young queens, and being able to reject the faulty ones without having to lose any time over them in the nuclei.

I am of the opinion that, if Mr. Wardell will separate a little two combs of sealed and hatching brood, and also two of unsealed brood, as well as make examinations where they are naturally spaced, he will find more bees clustered on the combs of sealed and hatching brood. I do not find that they have a preference for building cells naturally, on combs of unsealed brood, or near it, and in all probability the cells get more attention where the brood needs none in the matter of feeding.

I supply one comb of water placed at one side of the hive when the bees are screened in, and there is pollen in the combs, and a comb one-fourth full of lumps of starch, sugar, and water mixed, when there is but little or no pollen. Enough water to cover the starch is sufficient, and then stir thoroughly and add as much sugar as will dissolve. I got this idea by noticing how eagerly the bees work on starch thrown out about the laundry during a scarcity of pollen. Neither do I want to make the impression that I condemn the practice of placing combs of unsealed brood near the cells while being built, but simply called attention to the fact that more bees cluster on combs of sealed than unsealed brood; and I am not sure but that sealed and hatching brood next to the cells is just as good.

Creek, N. C., Aug. 7.

Digitized by Google

EMPLOYING THE TIME IN WINTER ADVANTAGEOUSLY.

Question.—As I consider it, my bees are all fixed for winter, my 20 colonies being all nicely tucked away in their chaff hives, each having from 25 to 30 pounds of sealed stores. Can I do any thing further along the "bee line" till spring? I do not wish to make up sections, or prepare many hives till I know how my bees will come out, for so many of them may die that I shall want no more hives and sections than I have on hand now.

Answer.—Now that we are in the midst of long winter evenings, it becomes the duty of all to spend these evenings in such a way that they may be gaining in knowledge along the line of the pursuit they have chosen in life. In no business engagement is this more imperative than where the culture of the bee is the chosen occupation, and in no way can this be done to any better advantage than in reading the bee-literature of the day, from which the mind is to be stored with useful knowledge which can be put into practical use as soon as the season of 1900 opens. When I first commenced bee-keeping I was greatly benefited by the writings of Elisha Gallup, L. L. Langstroth, Moses Quinby, A. I. Root, Adam Grimm, and many other of those early writers on this subject, for by their writings I learned my A B C in bee culture.

My first year of experience in bee-keeping by way of putting the things which I had read in practice, resulted in 12 pounds of comb honey and one swarm, from the two colonies I purchased to commence with. The next season I obtained 25 pounds of surplus from each colony I had in the spring, on an average. At the end of the fourth season I chronicled an average of 80 pounds of comb honey as the average surplus for each colony in the spring, while at the end of the eighth season my average yield per colony was 166⅔ lbs. During these eight years I had studied, read, and practiced all my wakeful hours, about bees, having great fun and keen enjoyment in doing the same, for I have never yet spent an hour (been in the bee business 30 years) in my life in work pertaining to bee culture without its being a real pleasure to me; and this was brought about by those winter evenings when I first began to read up the subject. Many and many have been the nights when I was awake from one to three hours, planning how to accomplish some result I desired to achieve in regard to the practical part of apiculture, which, with the help of what I had read, caused me to accomplish what I had sought after. During all of the years which have passed I have found that, if I would succeed, as far as possible I should read mainly those books and articles which come from the pens of practical bee-keepers — those whose ideas come from their daily work among their bees rather than from theorizing while sitting at the writing-table, for the former were the ones who made a success of their calling, and told just how they did it. If you wish to learn farming, to whom do you go—to the man whose farm is allowed to grow up to weeds and briers, with buildings unpainted and fences down, or to the man who produces good crops each year, has his fences up in good shape, with his buildings in attractive style and in good repair? To the latter, of course; and so you should do in bee-keeping. I am well aware that many of our most practical bee-men do not write for publication, and for this reason we can bring in visiting, during the winter, as another help along this line of our qualification. But when we visit we should try not to be a bore by staying two or three days, and during the whole time asking questions which are solely for self-benefit, for that can not be called visiting in any sense of the word.

Some years ago a man came some distance to see me. I was sick, and confined to the house, yet was able to be dressed and lie on the couch during the day. After warming himself for a little he told me he had come to have a little talk about bees, when he immediately pulled from his pockets eight sheets of foolscap paper, written over on both sides, with questions which he began asking in a dry, tiresome way. As soon as I gave an answer he began to write it down; and if he could not remember all I had said he asked over and over again, wishing me to go into the minutiæ of the thing while he took it down. I stood it (or, rather, lay), facing him for two or three hours, till I thought I was too sick and tired to be held in that way longer; and as he seemed to take no notice of the condition I was in I thought I would give him a hint, so I turned over on the couch with my back to him. As soon as he got through writing down the last answer I had given him he very quietly took his chair and came around to the other side of the couch and asked the next question. I stood it an hour longer, when I had to go to bed, completely exhausted, after which he asked my wife if she did not think I would be rested enough in an hour or so to visit (?) with him again. Well, to make the story short he stayed that day, all night, and the greater part of the next day, during which time I was able to answer all of his questions, he taking the answers down, and in departing I had the consolation of hearing him say to Mrs. D. that he had had a good visit, and that he was very thankful for the good entertainment she had given him.

When you go to visit any bee-keeper, make it a *visit*, by imparting something as well as in receiving something. And don't try to get too much at once, for a little well learned is much better than having so many things come before you that you do not half remember any of them. Then we have our bee conventions, which are mainly held during the winter months, and for the especial purpose of gaining knowledge; and while the cost of attending may be considerable, yet if we im-

Digitized by Google

prove the time as we should we can learn more than enough to make that cost good, besides the benefit which we derive socially. All of these things are great helps to us, and should be eagerly sought after, as they will be if we have a natural qualification for the calling which we have chosen. If any persons love something else more than they do to study bee-keeping, and only do this as a sort of duty, let them be assured that they have mistaken their calling, and the sooner they leave it and go to that which at all times gives them pleasure, the better they will be off, and the better it will be for the world.

But I feel that I should say a word to our questioner about putting off getting ready for next season till he knows how his bees winter. I can not help thinking that this is a mistake on the part of very many. The question should be, "Am I to continue in the bee business?" If so, then I must be prepared for a *full* honey-harvest from the number of colonies I have; otherwise, that *full* honey-harvest may come and find me "napping." My plan has always been to prepare hives to the number I wish to increase my colonies to, should the coming season be the *best*, and sections to the amount of 125 pounds for each colony I have in the fall. And I do all of this preparing during the winter months, getting every thing all in perfect order before the season opens, so that, when the time for active labor in the apiary arrives, I shall not be handicapped by not being in readiness for any "down-pour" which may happen to come.

BEE-KEEPING IN COLOMBIA, S. A.; STINGLESS BEES.

1. Do you think it possible to send queens down here?

2. We are in need of bees here on account of lack of distribution of pollen in the flowers. We are 3500 feet above sea-level; temperature 60° Fahr., on an average. Do you think bees will do well here?

3. We have a bee here resembling the Italian, but which has no sting. It is not a good worker. Would it be possible to breed them with Italians, or has it ever been done—that is, form a new species or kind?

J. R. GENUIT.

David, Chiriqui, Rep. of Colombia, S. A.

[We can send queens successfully to you, I think, providing there is no great interval between the time of arrival of the queen at port and arrival at your hands. We have sent queens successfully to Australia, New Zealand, and within the last two days have received acknowledgment of the successful receipt of queens at Natal, South Africa. We send queens regularly to Cuba, Jamaica, and to other islands of the West Indies. While we do not guarantee safe arrival, we put up our queens in the most approved forms, and would say that at least half of the queens sent to foreign ports by us go through alive and in good condition. Although you are located, as you say, at an elevation of 3500 feet above the sea, with an average of 60° Fahr., I do not see why you could not keep bees successfully.

The stingless bees are in no way to be compared to the Italians, nor in general to the *Apis mellifica*, to which blacks, Italians, Syrians, and Cyprians belong. You could not cross the stingless bees with the Italians nor with any of the other bees of a northern locality.—ED.]

QUALITY AND QUANTITY IN QUEENS.

On page 746, in a Straw, Dr. Miller says, "It's a good plan, when you take a super of sections off a hive, to pencil on one of them the number of the colony. Then when you find a super of greasy-looking sections you know where to replace a queen next spring." Then you add, "Good scheme! and while you are about it, it is a good point in favor of numbering hives" Both are good points; but I think you both have missed the most important point—one that I have aimed at practicing for years; and that is when you find one of those exquisitely filled and finished lots of sections that excite wonder and admiration, and capture the first prizes at our leading expositions. You know where to go for a first-class queen to breed from next season; for, in my experience, bees that do that sort of work never fail to be extra honey-gatherers. Then we have quality and quantity.

S. T. PETTIT.

Aylmer, Ont., Can., Nov. 11.

INTRODUCING QUEENS; THE WIRE-CAGE PLAN A FAILURE.

To R. A. Lapsley, page 762, I say, amen. I have repeatedly failed, and never succeeded, by that plan; that is, the queen would be eaten out and the bees would accept or reject just as they liked. I have no more use for the plan in question.

The last plan given by Dr. Miller, on page 725, 1892, is the best I ever tried for valuable queens. The only objection is the necessity of putting brood above an excluder a few days before the introducing is done, so you will not have unsealed brood to perish, with no bees old enough to feed them. But it saves the queen—that is what we want.

I should be glad if breeders would clip all queens sent out. I have never had one fly away when introducing, but came near losing several.

W. A. H. GILSTRAP.

Grayson, Cal., Oct. 31.

ALCOHOL-LAMP FOR DAISY FASTENER.

I use an alcohol-lamp with the Daisy foundation-fastener. No chimney is needed, and there is never any smoke to soil the sections. The lamp costs 25 cents, and wood spirits about $1.25 per gallon.

E. E. BOGUE.

Stillwater, O. T., Nov. 8.

Digitized by Google

WHAT do you think of our Christmas issue?

SIXTEEN extra pages in this issue, and yet there is still on hand a lot of good matter that had to be held over.

SOME of these editorials in this issue are written at the rate of 60 miles an hour—that is to say, they are scribbled off on a Pullman car going at that rate from Denver to Chicago via the Union Pacific and the Northwestern. If my thoughts appear somewhat joggled (my writing is surely that way) you will please lay it to the aforesaid break-neck speed.

MY route to the Denver convention was over the Lake Shore and Michigan Southern, Chicago and Northwestern, and Union Pacific. Over the last two roads I took what is known as the Colorado Special, one of the fastest trains in the world; and the route as a whole in a modern sleeping-car was one of the easiest and smoothest I ever took.

GOOD FOR "LUPTOM."

AS far as we have been able to learn, Mr. Luptom has either sent queens or returned the money; and my impression is, the lesson he learned in this transaction will probably last him as long as he lives. If this be true, shall we not forgive and forget? and remember, "There is joy in the presence of the angels of God over one sinner that repenteth." A. I. R.

THE COLORADO CONVENTION.

THE convention of the Colorado State Bee-keepers' Association was a success in every way. The attendance was good, ranging from 50 to 80; and the discussions, always spirited, were along practical lines. Instead of there being a regular set program, a program committee provided a set of topics for each session, assigning subjects to such members as would be the most competent to take them up. The plan worked admirably, for the association is made up of live bee-keepers who can talk from an extended experience. A report of the proceedings will appear in our next.

OUR INDEX FOR 1899 GLEANINGS.

THIS, our Christmas number, is a little late, partly because I have been away and partly because of an extended index that has to be made up and prepared, very largely at the last minute, when the whole volume for the year is complete. And speaking about the index, you will find it, perhaps, the fullest that we have ever given. Subjects of importance are cross-indexed, so I believe our readers will be able to find any thing with little or no difficulty. With the exception of the index of correspondents I dictated the whole to W. P., or Stenog, and then it devolved upon the latter to arrange the whole in alphabetical order.

But a good index is worth nothing unless the whole volume is preserved and kept in regular order. Get the whole 24 numbers, place one upon the other in regular order, and if you have no better files drive two wire nails of suitable length through their back edges, and clinch. Better still, get our regular binder which we can supply at 82 cents postpaid, or the same leather-backed for 92 cents.

A NEW KODAK FOR GLEANINGS.

IN my trip through Colorado I carried a brand-new folding kodak with all the latest attachments, for I felt that an illustrated journal like GLEANINGS required one of the very best that money could buy; and of all the cameras I have ever seen, the Eastman Kodak Co. get out the best. With this instrument I took "snap shots" and "time views," some of the latter being taken in a dust-storm when there was a little lull in the wind and the dust. I find I have secured something like 60 exposures in all, the best of which will be reproduced in these pages during the coming year, so that my Colorado trip will be spread out through the succeeding issues of GLEANINGS for the next four or five months. Considering the fact that Colorado is one of the greatest and best bee localities in the world, the series ought to prove interesting.

HUTCHINSON AND YORK.

I HAVE several times spoken of the pleasant relationship existing between the editors of bee-papers. This editorial fellowship is especially strong between Editors York, Hutchinson, and myself. I have gone to conventions with both, in the same sleeper, and have bunked with each, both in the car and at hotels, so that I have come to know them intimately; and it gives me special pleasure to say that they are royal good fellows, genuine rivals in a business way, but the rivalry is of the pleasantest sort. We know each other well enough to offer criticisms of each other on the quiet and in the open; and in every instance, so far as I know, these criticisms have been taken in the kindly spirit in which they were offered.

Mr. Hutchinson started the *Bee-keepers' Review* at a very inauspicious time, as it seemed to me. Indeed, it was up-hill sledding for him for a long time; but with that indomitable perseverance that is characteristic of its editor, the *Review* has moved onward and upward until there is not a trade journal of any sort that excels it in typographical neatness and general appearance. The *Review* to-day enjoys the largest patronage, I believe, it has ever had since its first issue; and no one rejoices more in that success than does your humble servant.

The "Old Reliable" was purchased by Mr. York of Thos. G. Newman at a time when the latter was steadily declining in health, and found it necessary to seek a change of occupation and location. While the *American Bee*

Digitized by Google

G. W. YORK.

MISS HUTCHINSON.

W. Z. HUTCHINSON.

Digitized by Google

Journal has always been a standard publication, it now stands head and shoulders higher than it ever did before. Always typographically neat, always punctual, a practical, up-to-date weekly, it fills a niche by itself, for no other bee-paper has "sand" enough to make weekly visits.

Miss Hutchinson (the whole family for that matter) has contributed in no small degree to her father's success, and it is also with no little pleasure that I present her picture — with the other two editors, I was going to say. Who knows but she may some day slip into her father's editorial shoes, just as another has done?

I take pleasure, therefore, in introducing to you Editor G. W. York, of the *American Bee Journal;* Editor W. Z. Hutchinson, of the *Bee-keepers' Review*, and Miss Editor, or, perhaps, more properly speaking, Miss Compositor.

THOSE PRIZE PICTURES.

IN our last issue I promised to set before you the series of prize pictures entitled "A Good Catch." Well, here they are. I agreed that I would not give the names of the young ladies whose faces and figures grace our pages, and I shall stick to agreement; but if any good-looking bachelor without gray hairs or baldness (and we have lots of them in our ranks) desires to know their whereabouts, he *might* possibly get their names by writing to those who took the pictures of the subjects.

One of the pictures, the fourth of the series, is what is called a wash-drawing, and is therefore an ideal picture in that it depicts a scene that is photographed first on the artists's mind's eye.

While it was "nip and tuck" between three of the pictures, the photograph by Mr. W. Z. Hutchinson was given the first position because of the "foliage background" that so artistically sets off the rest, or principal part of the picture.

The first prize picture appears as a frontispiece in our A B C book; and the one by J. O. Shearman will appear in our honey-leaflet along with a series of other engravings showing the various stages of the art of producing honey.

LOCALITY, AND ITS BEARING ON BEE-KEEPING IN COLORADO.

LOCALITY is often made to cover up a multitude of sins — or, rather, a multitude of opposing opinions of various bee-keepers. While it does, no doubt, account for many of them, more of these diversities may be traced to pure prejudice and preconceived notions. Yet if there is any place in the United States where locality does necessitate a change in methods it is in Colorado.

When a bee-keeper moves from the East to that State he must unlearn some of his old plans of work, and adopt new ones. The altitudes of some portions of the State; the absence of rain; irrigation; an entirely different flora, all go to make up a different set of conditions. While the average temperature in winter is about the same as in Ohio, yet, on account of the absence of moisture in the atmosphere, colonies may be wintered in single-walled hives with only a thin layer of absorbents on top. Indeed, I was told that double-walled hives and an excess of packing is worse than useless. Colonies packed as we prepare them in this locality would not winter as well as in single-walled hives. A dry cold atmosphere is not nearly so destructive to bee life as the same temperature here with moisture. If I had been chilled through in Ohio as I was on occasions in Colorado I should have had a severe cold; but no bad results followed in that dry State.

The matters of spreading brood, and early spring preparation, have to be handled in an entirely different way.

The effect of the dry climate on the hives, especially hive-covers, is simply astounding to a tenderfoot. Indeed, I never could have believed that lumber would shrink from ¼ to ⅜ to the foot, and that nails would actually work clear out of the boards, if I had not seen just these things with my own eyes.

Moth-millers are unknown in Colorado, and, as a consequence, no fear need be entertained that combs and comb honey will be damaged by any such sort of pest.

Black bees are another minus quantity in the State. I was surprised to find in all the yards such nicely marked Italians everywhere.

There are other queer conditions, but to these I shall refer in future issues.

THE WILD AND WOOLLY WEST; BEE-KEEPING IN COLORADO.

ALMOST as if it were a delightful dream I look back upon my ten-days' sojourn in Colorado—a land of the barking prairie-dogs and howling coyotes; of the awe-inspiring Rockies with their lofty peaks; of gold and silver, of copper and iron, of alfalfa and sweet clover; and, not least, the land where the sweetest and finest and thickest honey in the world is produced. The ordinary magazine article would lead one to believe that the "wild and woolly West" consists of fighting "Injuns," six-shooter cowboys with their bucking bronchos, desperado miners filled with poor whisky, and—some other folks living in tents, prairie-schooners, huts, or dugouts. The fact is, the ordinary writer sees only the unusual and the extraordinary; and when he attempts to enlighten the "tenderfoot" he makes it appear as if the great plains and the mountains were filled with this kind of folk, when, in fact, it is only a very small part of the real population.

As to cowboys, I didn't see one real live specimen. Miners I saw, lots of them, but they appeared to be real gentlemen in soiled work clothes. Of bee-keepers I saw many more, but only a small portion of the actual number in the State; for I am informed by Sec. Rauchfuss, of the Colorado State Bee-keepers' Association, that there are 2000, by count, notwithstanding that only one-tenth of the State is in actual cultivation. Bee-keeping is confined almost exclusively to the irrigated regions where alfalfa is grown. But of this I shall have more to say at another time.

Digitized by Google

A GOOD CATCH—FIRST PRIZE, $10.00.

Photograph by W. Z. Hutchinson.

Digitized by Google

SECOND PRIZE, $5.00

Photograph by A. L. Lundy, Wilsonville, Ont., Can.

Digitized by Google

THIRD PRIZE.
Drawn by E. L. Murray, Cleveland, Ohio.

SECOND PRIZE, $5.00.
Photograph by J. C. Sherman, Hamilton, Ont.

Digitized by Google

While the villages are distinctly Western in general character, the cities seem to be just as distinctly Eastern; for, indeed, they are made up of eastern people and eastern capital. Under the influence of the bracing climate and new conditions the western centers of population seem in many respects to surpass their eastern rivals. This is particularly so of Denver. The streets are broad, and the buildings are either of stone or brick; indeed, there is scarcely a wooden structure in the whole city.

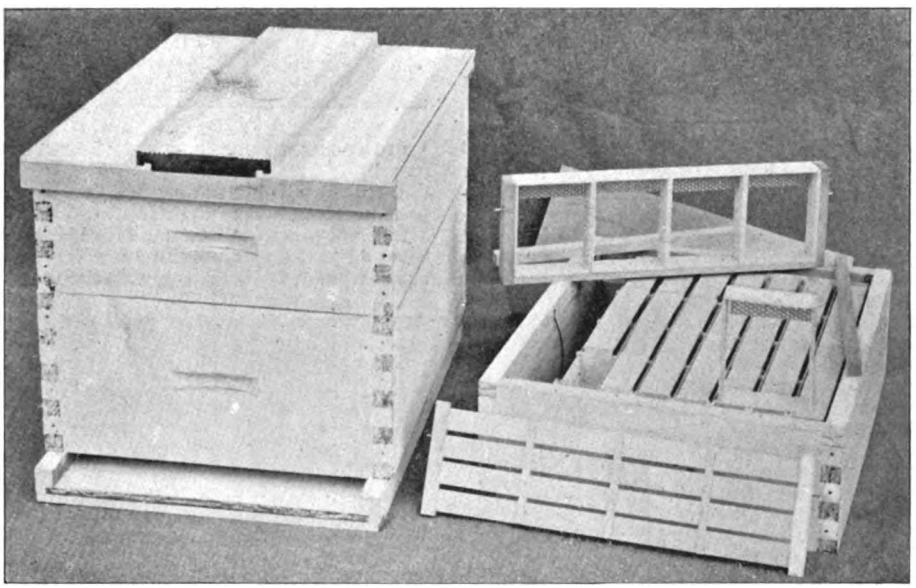
Situated as it is in sight of the Rockies, with their snow-clad peaks,* and itself on high ground a mile above sea-level, it is at once in one of the most healthful and picturesque locations in the world. Almost perpetual sunshine and dry mountain air have drawn thousands of people of wealth and culture to this metropolis of the West. Many an invalid has gone there and been restored to complete health. In fact, the majority of the people I met seem to have flocked to Denver because they could live nowhere else. Not a few bee-keepers were in this class, and it is remarkable what elevation and climate have done for them.

And this reminds me that Denver and vicinity form one of the greatest bee-keeping centers of the whole world. There are a great many who own anywhere from 100 to 200 colonies; and not a few who own and operate from 400 to 500. During the ten days that I was in the city I made short tours out into the outlying country to see some of the bee-keepers in their homes. In future issues I shall have something to say of these little trips. My ever faithful kodak, together with my note-book, took in many an idea, and these will be given to our readers.

* Pike's Peak, Long's Peak, Gray's Peak, anywhere from 25 to 100 miles away, can be seen on clear days.

CLOSED-END FRAMES AND THE DANZENBAKER HIVE.

In my recent trip through Colorado I learned that the Rauchfuss brothers, Frank and Herman, are and have been using closed-end frames in the regular Dovetailed hive, with a great deal of satisfaction. They realize that, to advocate such an innovation as this for the West, is almost heresy; but they say they get their combs built clear out to the end-bars, and clear down to the bottom-bars—something that they can not accomplish with the ordinary hanging frames with open ends or partly open ends;* and, what is more, they claim that they can handle these frames more easily than the regular Hoffman. I said to Frank, "Why, don't you urge these upon your bee-keeping friends?"



THE DANZENBAKER HIVE AND 4×5 PLAIN-SECTION SUPER.

"It would not do," said he; "they would not take them."

For several years the Danzenbaker hive has been sold with closed-end frames; in fact, it is the only hive on the market so equipped. It is constructed practically the same as last year—the only difference being in the cover. This, like the other, is of the three-piece type, the two side-pieces or boards not being beveled or slanted off to shed the water. That is to say, they are of the same thickness, ¾ inch throughout, except at the extreme of one side, and are so constructed that the water will run off at *the ends* and not at the sides. Like the Excelsior cover for the 1900 Dovetailed hive, they have shoulders or projections that reach up into corresponding channels in the ridge-board, thus making it impossible for water to get through except by running *up hill*. To hold the three pieces together, there is a cleat at

* I looked over quite a number of these combs, and this statement is literally correct.

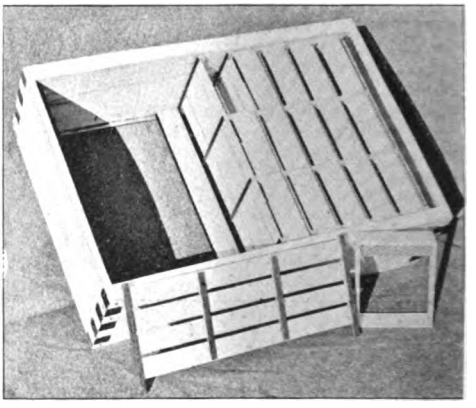
Digitized by Google

each end let into grooves so situated that its top side shall be *under* the surface of the boards. The cover, as a whole, may be nailed to permit of the swelling and shrinkage of the boards, without checking or splitting at the point where the nails enter.

The closed-end frames and the super are the same as those put out in hives of previous years.

The bottom-board is of the Danzy type, reversible, to give ⅜ bee-space on one side and ⅞ on the other.

The hive itself is of the same dimensions exactly as the regular 10-frame Dovetailed Langstroth, except in depth. It takes a closed-end frame 7 inches deep instead of one 9⅛ like the standard L. This gives a low-down flat hive with large super capacity, and of about the same cubical contents as the regular 8-frame Langstroth brood-chamber, but permits of the use of 10-frame supers and 10-frame L. bottom-board; and to this extent the Danzenbaker is interchangeable with any 10-frame hive of standard dimensions.

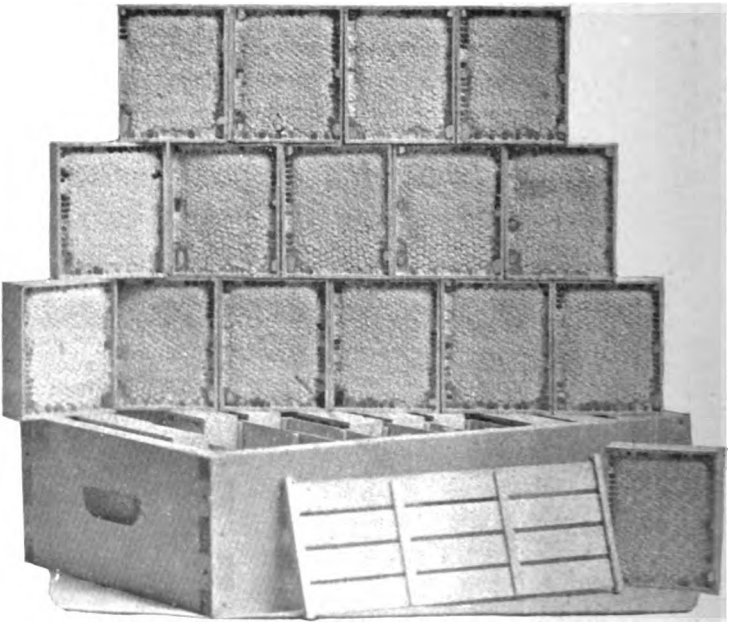


EIGHT-FRAME SUPER FOR 4×5 SECTIONS.

PRODUCING COMB HONEY CROSSWISE OF THE BROOD-FRAMES.

Some two months ago Mr. Louis J. Whitney, of Mapleton, Utah, sent a photo of some 4×5 honey, together with the super in which the same was produced. We have sold such supers for a number of years, but have always had a fear that the edges of the combs next to the super side would not be as well completed as those adjacent to the center; but the photo seems to indicate that there is no perceptible difference. Mr. Whitney says the honey stacked up on the super is the poorest out of a lot of 30 from the same super.

As the 4×5 seems to be preferred to the 3⅝×5, we finally decided to put out a super for 1900, the sections running crosswise of the same; for 3 sections 4 inches wide just fill out the width of the super, which is 12⅛ in., the extra ⅛ allowing for a reasonable amount of play. If the hive is properly leveled up there is no reason why comb honey could not be produced on this plan, and give good results. The super for 1900 is shown above.



SECTIONS FROM A CROSSWISE SUPER.

In some apiaries it is the practice to have the hives tilted so that the front is slightly lower than the rear. On hives so placed, full sheets of foundation in sections placed crosswise might hang a little out of true. While theoretically it would seem to be good practice to tilt all hives forward, yet in actual practice there is very little in it.

It is not practicable to use 4x5x1⅜ sections in an 8-frame super, running parallel with the brood-frames, for the reason that the 1⅜ thickness does not come out right with the width of the super; but by running them crosswise we secure the greatest economy of space and yet get 30 sections in the super — within two as many as we can get in the ten-frame size with sections running the other way.

Digitized by Google

But and if that evil servant shall say in his heart, My lord delayeth his coming; and shall begin to smite *his* fellow servants and to eat and drink with the drunken; the lord of that servant shall come in a day when he looketh not for *him*, and in an hour that he is not aware of, and shall cut him asunder, and appoint *him* his portion with the hypocrites: there shall be weeping and gnashing of teeth.—MATT. 24:48-51.

"I dreamed a dream that was not all a dream." This quotation came vividly to my mind when I awoke this morning, and I have been thinking about it more or less all day. The day before had been a very busy one, and I had been hurrying here and there, giving hints to this, that, and the other one, looking after things that nobody seemed to feel responsible for, although each one seemed to be quite willing to take up the matter in hand when I explained to him why it must be attended to before the coming winter. Well, in my dream I was making all the rounds as usual. Away down at the further end of the lumber-piles—that is, those furthest from the factory and nearest the carp-pond—somebody called my attention to a little fire in some straw near the lumber-piles, and he said it should be looked after. It was but a *little* fire, and a pail of water would have put it out. But there was no pail near, and there were none of my usual helpers who knew where to get a pail and where to get water. I was already pretty tired, and I can not run as I used to, even in case of a fire. There were dozens of workmen just a little way off; in my dream I saw them scattered all through the lumber-piles all over the premises. Some were taking lumber from the cars, others were loading up finished work. Farmers were there with loads of basswood. The scene was refreshing — that is, so far as seeing so many busily employed was concerned. I called to a boy whom I did not know, or at least did not know very well, and asked him to get a pail of water quick, and I pointed to the fire. To my astonishment he did not seem to be very much interested in the matter, and asked where he could find a pail. I was going to tell him to go to the barn; but a man who does not know any thing about the barn would blunder around until the fire would be in the lumber-piles. I looked in vain for one of the men who take care of the horses, but I could not see any of them. Then I thought I might put the fire out with a piece of board—a thing I have often done, to the surprise of the bystanders; but when I went around one of the lumber-piles I saw the fire had crept along out of sight, and was already climbing up the pile of lumber. A brisk west wind came up, and the fire was mounting rapidly to the top. The boy who asked me where he could get a pail had resumed his work of piling lumber. I began to yell "Fire!" and asked those nearest me to "holler" also with all their might, and to get somebody to pull out the hose and attach it to a hydrant not very far off. But the only reply I could get was, "I do not know any thing about your hose and hydrants, and I do not think that this little fire will do much harm anyway." Oh how I did long for Frank or Herb, or Ernest or John! I reflected that Ernest was absent in Denver at the convention, and he knew more about the waterworks than almost anybody else. John, with his great strength and energy, would have been a power if I could only have got word to him or got *hold of him*. The foreman of the machine-shop, who has all the waterworks at the ends of his fingers, was probably busy with the work that begins to be hurrying for next year, and knew nothing about it unless he could hear the yell of fire, but nobody would help me give the alarm.

My voice has been failing of late. It fails in this way: When I try to explain things or give directions in the saw-room and among the machinery, the effort to make myself heard exhausts my strength, mentally and physically. I have sometimes thought that, with the effort required to talk when there is so much noise, I ought not to *try* to talk, for it has seemed that this and nothing else brought on my nervous chills. I often call the foremen of the different rooms away from the noise of the machinery — sometimes outside of the door, rather than to strain my voice and hurt my throat—yes, and make me "tired" by trying to talk amid such clatter. Perhaps I might as well confess that the noise of children when I want to say something vexes me of late, unless I try verv hard *not* to be vexed, especially when the children yell at the top of their voices just for the sake of using their lungs when there is no sort of need of such muscular effort. Their young muscles need using for their better development.* Mine need rest because they have been overtaxed.

Well, I had the same feeling about the fire. I was rapidly using myself up, and nobody took much if any interest in the matter. For quite a spell they said it was only a *little* fire, and it would not do any harm. But finally, as it climbed and crackled from one lumber-pile to another, when somebody told me he did not believe they *could* put it out if they tried, and kept on with his work I began to get mad. My Root temper (partly on account of my fatigue) was rapidly rising. I said to some of them, "What is the use of your piling lumber or loading cars when they will all be burned up in a few minutes, unless you turn in and help put out the fire?" But they did not seem to care. It was not *their* lumber, and they were not hired to do that work. The fact that they would probably be out of a job on the morrow did not seem to have any interest for them whatever.

To cap the climax, just about this time a very bland-looking gentleman came along with a smiling face, and put out his hand, saying he had for long years looked forward to the pleasure of shaking hands with A. I. Root. I was hoarse with over-exertion, and I do not know but I was somewhat hoarse from

*Oh how I longed in my dream for these same grandchildren or anybody else who could yell and halloo, and "raise the roof," as the expression is!

Digitized by Google

the effects of passion. But I managed to say, as civilly as I could, "My dear sir, I have no time to shake hands with *anybody* until this fire is put out;" and as he stood there with his hand extended, partly blocking the passage, I ordered him out of the way. But he was not so easily put off. He said he wanted only a *minute* of my time, and he hoped I would *surely* shake *hands* with him. "No, sir, I *will not*. If you are any man at all, just turn in and help me yell fire, and get our people here to subdue it before it goes a minute longer."

But he kept on; and some of the others who were so busy piling lumber suggested that it would be a "long time" before the fire got up to where *they* were, anyhow. I believe I have generally had a pretty good opinion of humanity—at least I have tried to have; but at this crisis I stood *appalled*. Was it really possible this world contained so many people who would stand by with such indifference when anybody of sense could easily see that our *whole possessions* would be wiped out in one hour at the rate the west wind was making the flames leap from pile to pile? and yet I was not able to get a *single* soul to do a *thing*.

The smiling gentleman who looked so good-natured in spite of the way I treated him, got in my way again, and begged for just a minute. At this crisis I yelled to him to get out of the way or I would strike him.

"Why, dear Mr. Root, you can not be in your senses when you speak so to a stranger who has come a long way to see you—one who has read your Home Papers with such pleasure and profit all these years." But in spite of my Christian teachings I felt more inclined to mash his disagreeable face, and take the smile out of it (if it were a possible thing) than I ever felt tempted to do any thing before in my life. He still urged that what he had to present would take but a minute, and actually whipped some papers out of his pocket for me to look at. I told him the time he had already occupied had enabled the flames to get such a headway that perhaps they *could* not be stopped; and then it dawned upon me I was stopping to quarrel with a man while my property was burning up. I might have reached the factory or the machine-shop certainly, if I had started out on a good run when I first saw the flames. I do not know where my wheel was just then. It did not seem to be along. Two or three times something whispered to me in my great distress that it was but a dream or "a vision of the night;" but I looked again, and the sound of the crackling flames which had *already* driven the workmen from their places was a reality if any thing *ever* was. Then I awoke. It was already past five in the morning, and five is our usual hour of getting up.

Now, then, about the part that was not *all* a dream. Ever so many times to-day I have fallen to wondering whether it *is* possible my dream was not a pretty true picture of humanity in some respects. Just before going to bed I looked over the daily, and eagerly scanned the message of the President to see if he had in it a word for temperance. I did not find it. The next paper I picked up was a little sheet called *The Open Door*, published at Knoxville, Tenn. Well, in that paper I find the following. I do not know whether it had any influence on my dream or not. If it did, it influenced me unconsciously. Here is what I read:

> A hungry tramp who steals a chicken is a thief. A man who picks your pocket is a thief. The man who abstracts the ballots from a box and thereby elects his friend to office is a thief. The man who spirits away from its proper place the act of a legislature and thus prevents the enactment of the law is a thief. Congress passed a law prohibiting the army canteen-saloon. The intent of the law was well known, the language plain and comprehensive. By a most villainous interpretation and construction virtually nullifying the act, the saloon stole a victory over the friends of temperance. What are we to think of the attorney who gave the famous construction, the secretary of war who approved the attorney's action, and the chief servant of the nation whose silence gives joy to the saloon interests of the nation? When all these rogues appear at the final great high court of the universe, the tramp's position will be envied by all the others.

I do not know who wrote the above, but I judge it was the editor, and it seemed to me as if it put the state of affairs into a nutshell better than I have ever heard it presented before. The paper does not seem to be a political one in any sense of the word. It has, however, a good deal to say about the W. C. T. U. work in various places. Is it possible my dream was providential in order to point out to me the indifferent and easy don't-care way in which almost the whole world is treating this matter of intemperance? *The Open Door* has got it exactly. Our various political parties, with the exception of the Prohibition party, seem to have rather decided the fire will not do very much harm, or it will be a long while before it gets to us, or else it has got to going already to such an extent we could not put it out if we tried *ever* so hard. The saloon element, the beer-brewers, and the liquor-dealers are too powerful for us—they have got too much money. It is not *best* to oppose them *too much*, any way—it would just make lots of trouble, and things are going on pretty well as they are. It is only a few crazy fanatics who think the flames will spread and destroy every industry and all who have any thing to do with it. For weeks and months back I have been wondering whether the whole world was wrong, or that it was only my little self who was wrong. Just now I do not think I fear so much the drink habit as I do this modern fashion of ignoring law or coolly trampling law under foot when it runs up against temperance measures. I do not think that anybody pretends that the anti-canteen law was not perfectly understood when we fought for such a law. Our enemies understood it only too well, and I think it is just as well understood now, among all classes, that there has been a deliberate and concerted plan to defeat us by breaking the law after we have secured it. The most astonishing thing to me is that our President stands with all the world just as the man and boys did in my dream, and concludes it is best not to say any thing nor do any thing. The *Sunday School Times* in its last issue says President McKinley does not and will not trav-

Digitized by Google

el on Sunday. May God be praised for this; but why does not the same devotion to God's law and the laws of our land prompt him in like manner to declare he will not sit still in silence and see the temperance people of our land wronged and humbugged as they have been during the year just past?

The principal figure or actor in the dream I have described was the man who came in the guise of a brother Christian. Permit me to say the dream had overdrawn things rather, for I never met a book agent (or any other kind of agent) quite as bad as the fellow I have pictured. It is true, I have several times had men come to my home saying they had read my writings and had long wanted to see me and take me by the hand; and before they got through, or after I had insisted they must come down to business, they would pull out a book that had been concealed somewhere, and when I promptly refused to purchase or even look at the book they have sometimes tried (in vain, of course) to make me a present of it so my name might head the list while they went around town. If I have been in times past rude to some excellent people, especially before I really knew who they were, I hope they will accept the above explanation and excuse me. In fact, I would have it that our good friend Dr. Miller had something to sell the first time I met him, years ago. Well, now to the point of our story.

If some enemies, bent on ruining our business, had picked out a man who said he could get rid of *me*, by getting me into a quarrel, even while my property was burning, it might have explained matters. The saddest part of it is, he *did* succeed in getting me so angry that I for a moment forgot the burning lumber-piles. I do not know but that, in the heat of passion, I might have preferred to *lose* property rather than forego the gratification of giving him a pounding. You say, "Oh! that was a dream." Well, my friends, it was not *all* a dream. As I think it over, memory suggests places here and there, scattered through my past life where I neglected most serious and important duties just to stop and *quarrel* with somebody. Yes, and these fellows under the tutorship of Satan have managed to get valuable space in our journal occupied with matter that was of no value to anybody. If the story does not teach *you* a wholesome lesson it certainly does teach *me* one. May God forgive me for having been drawn so many times out of the straight and narrow path by some person like the one I have pictured in my dream; and as old age pushes along in its relentless march, may I have grace and wisdom from on high; in short, may I have of that Holy Spirit that will enable me to stand cool and steady, doing my duty before God, swerving neither to the right nor to the left, no matter how many subtile wiles may cross my path in Satan's various disguises, to lead me to waste time with straws and soap-bubbles, instead of giving my strength and reason to the work that needs to be done.

At first this picture I have been alluding to looks like an extreme one; but, dear friends, only a few months ago our Anti-saloon League was just about achieving a grand victory over the liquor-men. The latter had resorted to every hook and crook, but were driven into a corner. Finally they drummed up an infamous story that had not a particle of truth in it, and got the officers of the law to lend their aid, and arrest a minister of the gospel who was making it hot for them. Of course, he proved his entire innocence, and got clear; but they succeeded in preventing him from making his appearance at just the time he was needed most. Has any thing been done about it? Nothing, so far as I can learn. It was an easy matter to prove the whole thing a sham, and that it was just got up to evade law and nothing else; but it is so much the fashion to evade, avoid, and *humbug* when prosecuting liquor-dealers that nobody pays any attention to it. The whole world is a good deal like the crowd in my dream.

As a matter of course, when we have the example before us of law-breaking in one direction it is an easy matter to ignore and defy the law in other ways. Yesterday's daily, Dec. 7, tells of another negro, in Kentucky, who was burned at the stake instead of being promptly executed by law, as he would have been without a question. After torturing him in every way humanity could suggest, for over three hours, they left his charred remains; and the *children*, boys and girls, gathered sticks, grass, and whatever they could get hold of to continue the burning. What do you think of such an example for the rising generation? The officers of the law tried to protect him, but there were literally *thousands*, women as well as men, who threatened the lives of the officers if they did not hand over the prisoner. I understand the governor of the State is going to call for an investigation, and arrest the leaders; but there are so many of them, and they are such prominent people, that folks laugh at the idea. What sort of state of affairs is this? The women defended themselves by saying they wanted to give the man such a punishment that no colored man would ever do such a thing again. This may sound very well; but what sort of justice can we expect from the voice of the mob?

Now, please pardon me for one more illustration. A few weeks ago our good friend Admiral Dewey was exalted to the skies. We had Dewey strawberries, and at Yellowstone Park they have a Dewey geyser; and it is Dewey this, that, and the other. Dewey was the hero *of the present age*, and a subscription was raised without a bit of trouble, and he was presented with a beautiful home. And by the way, friends, when you make somebody a present, to whom does the gift belong? Is it not the property of the one to whom you gave it, just as much as if he bought it outright with his own money? If you say it is not, I hope nobody will ever make me a present again as long as I live. Dewey so understood it, as a matter of course, and I think he did an *excellent thing* when he presented it to his wife; and I am astonished and pained beyond measure, to know that any true man or woman in the United States should hurt his feelings by even *suggesting* he did any thing

Digitized by Google

in the least out of the way. But what does this wild element do about it? The crowd that exalted a man to the skies *one* day, found fault with him north, south, east, and west the next; and this same crowd (am I not right?) right away after, tortured a poor negro worse than any savages ever tortured a prisoner of war, instead of letting the laws of the land and the laws of God decide what was right!

I have been thinking lately of a trip to Florida during the coming winter. On account of poor health I usually travel in Pullman cars; but just now I can't bear the thought of a Pullman car. Let me describe one little scene in a dining-car, and it is a scene I see enacted over and over with variations every time I go into such a car. A finely dressed aristocratic-appearing man sat opposite me at the table. The porter no doubt recognized him as a different sort of man from myself. I do not feel at all bad about this. It is everybody's privilege to find comfort and enjoyment after his own fashion — that is, within certain limits. The porter, with many bows, brought first a dainty little bottle of some kind of strong liquor. I saw the names and the price on the bill of fare. This liquor he poured into a glass containing a bit of ice; then it was filled up with some effervescing mineral water. The porter was very skillful and dextrous in handling the cut glass and burnished silver appliances for concocting the various kinds of drinks. The man ordered very little in the way of food, but it was mostly expensive wines, brandies, and things of that sort. He finally threw out a silver dollar, and the waiter, with more bows, brought back the change — some dimes and nickels; but the great man, with a flourish of his hand, indicated to the porter that the dimes and nickels were of no consequence— that he should keep them himself. Then the porter bowed very low while he expressed his thanks; and the whole performance might have done very nicely for a tableaux at a theater. Now, I do not know where this man got his money to buy these expensive drinks, and give away the rest of the dollar because he did not need it; but I do know from what I have seen of the class of people who drink in this way, that it is quite likely this money was wrung from some poor hard-working man, or perhaps was accumulated by robbing —well, let us say *sick* people. There are laws to prevent robbing, but it is the fashion to let this class of gilt-edged gentry get off scot free if they treat the policeman — well, say about as that man treated the porter.

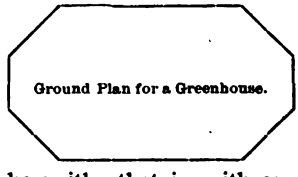
Now, I am not getting to be pessimistic. There are good people in this world — lots of them. When I went about to-day among my good friends, and thanked God that there is not one on our premises who would not spring in an instant, or risk his life, perhaps, to save our property, I laughed at the *absurdity* of the dream while I thanked God it was only a dream. The greater part of our American people are temperate. We can beat the robbers (standing in high places) ten to one, and *will* beat them if our laws are enforced; but if things are going to be allowed to drift in the way I have outlined, or, rather, in which that dream presented it, we are coming to ruin as in the language of our text, and there will surely be weeping and gnashing of teeth, as there *ought* to be.

GARDENING UNDER GLASS.

After the years of experimenting I have had in making glass structures and in visiting greenhouses and market-gardens, I think I can make some suggestions that will be of benefit to those who are going into the business of gardening under glass. But my remarks will be mainly for those who have not very much capital, and wish to make the glass go as far as it will.

For several years I have been watching the sun very attentively during the dark months of the year — say November, December, and January. During these months we want all the benefit of whatever sunshine "comes our way." Our plants will suffer from a lack of sunlight more or less, even if we do our best. Glass is also high-priced just now, and that is one reason why we should study to make a little glass go as far as possible.

Let me remind our readers first, that a given amount of material for fencing will inclose more land if the fence is made in the shape of a circle than in any other possible way; but if our lot must be rectangular, then it will take less fencing to inclose a given area if it is a perfect square than any other shape. The longer and narrower you make the lot, the more will the fence cost to inclose a given number of acres. Now, in making a greenhouse you could inclose more space at the least expense by having it round than in any other way. But as a general rule we want the house longer from east to west. In that case it should be egg-shaped, or oval — that is, if the egg were alike at both ends. As it is somewhat more expensive, however, to make walls on a curve, I would have the ground plan oblong, and with the corners taken off, like the following, for instance:

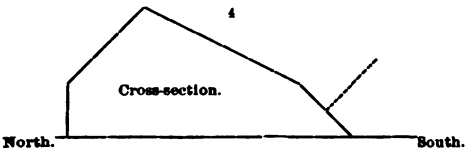


Now, reasoning as above, the way to cover cheapest this greenhouse would be to have it a half-oblong sphere, like the diagrams shown herewith; that is, with an arrangement like

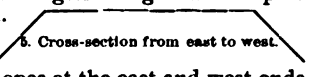
2 and 3 the same amount of glass would cover a given amount of space cheaper than in any other way. But in the first place we can not very well make a half-oblong sphere. It is

Digitized by Google

true, millionaires have such structures for their collections of high-priced exotic plants; but for growing cabbage and tomato plants, or even roses and chrysanthemums, we do not care to go into any thing that costs so much money; and even if we could afford it there are reasons why it is not what is wanted. First, we want to have the sun in the middle of the day send its rays through the glass at right angles as nearly as possible. Secondly, we want to have the morning and evening sun also send its rays through the east and west ends of the greenhouse, in a like manner, at as nearly right angles as possible. This being true, Fig. 2 should be flattened on the south side. Accordingly, we make our greenhouse so that a cross-section through the middle would be more like Fig. 4.



You will notice the longest glass roof is on the south side; and this is on such a slant that the sun during the greater part of the fall and winter months will shine nearly straight through it—in December, perhaps exactly straight through the slope on the extreme southern side. I have indicated by the dotted line about the direction of the sun's rays toward noon; and experience has backed up my theory, for the bed right near this sash is the best one in the whole greenhouse. There are two reasons for this. The sun, in the winter time, shines straight through it, as I have been saying, and, besides that, the glass is quite near the surface of the bed. Well, such houses are in common use; but I have never seen one except my own where the east and west ends of the house were also arranged to let the evening and morning sun shine through the glass at right angles. Fig. 5 will help to make this plain.


5. Cross-section from east to west.

Now, there is a very good reason why these slopes at the east and west ends of the house should *not* be squarely north and south; for during the dark months the sun never rises exactly in the east nor sets exactly in the west. What shall we do to enable the morning rays to come more nearly at right angles, and the evening rays in the same way? Why, we must twist the glass sides at the east and west ends so as to have them face the sun in the southeast and southwest. The easiest way to do this is to place the whole structure on a piece of ground that slopes gently to the south.

Now, there is still another advantage with such an arrangement. It is down so close to the ground it is not liable to be injured by high winds. In fact, the winds, from whatever direction they blow, strike the glass at such an acute angle they shoot up and over it without doing any damage, and without chilling the contents as they would were they to strike an upright wall of glass. I am inclined to think that greenhouse men have been slow to realize the great advantage of such an arrangement.

Continued next issue.

MORE ABOUT FRIEND MARCH'S "BIG SPRING."

Friend A. I. Root:—If you will remember, that ditch was about 8 feet deep where we struck that fine stream of water that came boiling up from below. Well, after studying the matter over for a year I came to the conclusion that, could we get down to where that "boil" came from, we could get more water. So, hiring a gang of men, we started fifty feet down the hill and ran in nearly level. We struck four feet of quicksand, and under the sand a hard clay bottom. We followed this clay bottom up until our ditch was, at the head, 19½ feet deep. This ditch has drained the whole hill, all springs on the north side have dried up, and the water all comes *our* way, which gives us a stream of 29,800 gallons [nearly 1000 barrels.—A. I. R.] per day; and the cost of digging, planking, and covering up, was not quite $100. With this stream of water we can more than double our crops of all kinds.

Fidalgo, Wash., Oct. 28. H. A. MARCH.

TEN PER CENT A WEEK FOR THE USE OF MONEY.

I suppose most of you know something about the Franklin Syndicate that has just gone to the wall. They offered to pay depositors ten per cent a week for the use of their money; and to carry on their swindle they did pay ten per cent a week. Then they got their patrons to advertise for them in order to get more customers. This was a very easy thing as long as people would keep bringing their money with which to pay the ten per cent a week to those who had previously given them money. Of course, there were those who had sense enough to inquire why they did not go to the banks and get money at *six* per cent *a year* instead of soliciting loans in little dribs from poor people here and there and everywhere. Their explanation for this crazy way of doing business was, I am told, that they wanted to help (?) the poor laboring classes. Now, my friends, when you see a man anywhere throwing out dimes and quarters, and advertising far and wide that he does it to help the *poor*, set him down as a thief and a robber, and keep out of his clutches. It is only gambling under a new guise. Many of the victims admitted they *knew* the thing was a humbug; but if it held out ten weeks they would get their money all back that they had paid in, even if they never got the principal at all. These people *admitted* they were guilty of gambling. It seems hard to believe that that Franklin Syndicate robbed poor people (very likely sick people too), to the extent of millions. Since the news has gone out of their success, other thieves and robbers are starting modifications of the same plan.

Some time ago a young friend told me he had found a place where he could get 14 per cent a year and no mistake. I told him no sane man could or would pay 14 per cent a year when he could get plenty of money fo less than half that much unless he were shaky or risky, and advised him to have nothing for do with it. I need not tell you how it turned out. Well, since these fellows have gotten away with such an immense amount of money, this thing will probably be tried with no end

Digitized by Google

of variations. Now, mind you, these philanthropic fellows who claim they are anxious to help the laboring people have no conscience whatever, and have no scruples at all in taking the *last copper* a poor woman has earned by going out doing washing.

"GARDENING FOR PLEASURE."

The greenhouse I have been talking to you about on another page, and which will be presented in our next issue, is now occupied, or a great part of it, with flowers instead of vegetable plants. Instead of raising stuff to sell, I am planning to grow plants this winter with which to decorate our grounds around the factories. Just now I am greatly interested in ornamental colei. I have not yet become sufficiently well acquainted with the plant to succeed with it as I should like. If any of our readers who are experts with the coleus can give us some hints, or even send me a price list of new and choice plants, it will just now strike me where I am greatly interested. I have already a Bermuda melon-tree nearly a yard high, an azalea, an orange-tree with seven oranges on it; a lot of geraniums (I make these grow just grand), an umbrella-tree, an abutilon, quite a lot of palms, etc.

CHOICE HONEY, COMB AND EXTRACTED.

Of the car of honey received from Utah we have sold nearly two-thirds of the comb and perhaps one-fourth of the extracted so far. We are negotiating with some parties for comb, and may close out the rest of it very soon. If in need of any, write before it is all gone. Price 16 cts. per lb. in 5-case lots or over; extracted, 10 cts. in case lots of 110 to 120 lbs. per case. Samples of extracted mailed on application.

CARLOAD SHIPMENTS.

We have already begun to receive orders for supplies for next season quite freely, from jobbers and wholesale dealers, and are now shipping out one or more cars each week. We have loaded seven cars of goods for export since the last week of October, counting two we are loading as we go to press, and have orders entered for several more, besides four cars for shipment west this month.

SUNDAY SCHOOL TIMES.

Those of our readers who desire the *Sunday School Times* can have it clubbed with GLEANINGS for one year at $1.50 for the two. If you have already subscribed for GLEANINGS under some other offer you may send 75 cents alone for the *Times*. The year begins with Dec. 15, 1899, and ends middle of December, 1900.

RETAIL CATALOGS.

We are pushing the work on the revision of our catalog as fast as possible, but are not likely to have any completed till late in January. You need not wait for a new catalog for prices, as those which are changed from old edition are printed in our Nov. 15th issue, and we will print within a few days a 16-page illustrated and priced advance catalog, without descriptive matter, for use until the complete catalog is ready.

SECOND-HAND FOUNDATION-MILLS.

We have at this writing the following second-hand foundation mills which we offer at the following prices:

No. 1858. One 6-inch Root mill. This will make fair thin or extra thin; is in good order, but has several cells slightly damaged. Price $12.00.

No. 1949. One ten-inch Root mill with hexagonal cell and 2½-inch rolls. This has been used in our wax-room, and is in first-class condition for thin super. A new mill of this style is worth $30.00. Will furnish this one for $20.00.

No. 05. Six-inch mill with two-inch roll, and makes fine foundation. Price $12.00.

No. 06. Six-inch mill with 2½-inch roll. This has been used only a few months, and will make good foundation. Price $15.00.

No. 07. Six-inch mill with 2½-inch roll. This was made for thin super. It has seen considerable use, but for a general-purpose mill it will do very well, as it would make good light brood. Price $12.00.

No. 09. Ten-inch round cell with two-inch roll; in fair order. Price $18.00.

Send for samples of the mills you are interested in, provided you intend to purchase, and state which ones you wish to see samples of, and we will forward them promptly.

CONVENTION NOTICES.

The Northeastern Ohio and Northwestern Pennsylvania Bee-keepers' Association will hold their nineteenth annual convention at Andover, Ohio, Jan. 17 and 18, 1900, at Chapman Hall.

Franklin, Pa. ED JOLLEY, Sec.

The 34th semi-annual meeting of the Seneca Co. Bee-keepers' Association will be held in the K. O. T. M. Hall, Romulus, N. Y., on Tuesday, Dec. 19, 1899, at 10 A.M. C. B. HOWARD, Sec.

Romulus, N. Y.

A bee-keepers' institute under the auspices of the Bureau of Farmers' Institutes will be held in connection with the meeting of the Cayuga Co. Bee-keepers' Society at the Business Men's Association Rooms, Auburn, N. Y., Dec. 21, 1899. Sessions at 10 A. M., 1:30 P. M., and 7:20 P. M. The afternoon and evening sessions will be addressed by Prof. Frank Benton, Assistant Entomologist, U. S. Department of Agriculture. All interested are invited. J. W. PIERSON, Sec.

Advertiser's Department of Short Write-ups.

Little—But a Great Hatcher.

Hundreds of poultry-raisers on a small scale have long wished for a small, inexpensive, yet practical incubator. These will hail with delight the introduction of the "Wooden Hen."

This little hatcher does just as good work as the highest priced incubators. It is heated by hot water, and has the latest and most improved automatic attachments for regulating heat, moisture, and ventilation. It is made in the most substantial manner from thoroughly kiln-dried lumber, is handsomely finished, and has a capacity for fifty eggs. The extremely low price brings it within the reach of all, enabling any one to raise broilers for market, or for his own table, when prices are highest. An interesting and valuable little book about the "Wooden Hen" may be obtained free of the manufacturer, Mr. Geo. H. Stahl, Quincy, Ill., by mentioning this paper.

Since we began to offer poultry-journals in our clubbing list (see page 949) we have been interested to notice a good many of our readers are poultry-keepers as well as bee-keepers, and it seems as though success in this as well as in bee-keeping depends upon careful and economical management. One of the means for this which has come more and more to be depended on is the using of scraps of meat and bone, particularly fresh bones; and for getting into available shape, I believe there is nothing better than the bone-cutters offered by F. W. Mann & Co., Milford, Mass., whose ad appears on page 949. We quote the following, from a well-known poultry-man: "Fresh-cut bone as an egg food is no longer an experiment. *We know* it is the best thing on earth to make hens lay and chick grow. It will pay you to invest in a bone-cutter, if you have not one already." If you have not already written to F. W. Mann & Co. for their catalog, better do so at once, as it contains lots of valuable information, and when doing so don't forget to mention GLEANINGS IN BEE CULTURE.

Digitized by Google

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
J. T. CALVERT, Bus. Mgr.

TERMS. $1.00 per annum; two years, $1.50; three years, $2 00; five years, $3 00, *in advance;* or two copies to one address, $1.50; three copies, $2.00; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

RECEIPTS FOR MONEY. We send no receipt for subscription money. The change of the date on the little label shows you that the money has been duly received and credited. During December and January it sometimes takes us three or four weeks before the date is changed.

RATES OF ADVERTISING. These will be furnished on application.

Trial Subscriptions.

3 Months, 15c; 6 Months, 25c.

We offer GLEANINGS IN BEE CULTURE to new subscribers three months for 15c, or 6 months for 25c. Renewals not accepted at these rates.

Clubbing Rates.

As an inducement for our subscribers to renew before the expiration of their present subscription, which saves us considerable time, we offer the following rates for Gleanings one year and a year's subscription to any of the following papers at prices mentioned:

For One Dollar Only.

Gleanings and your choice of the following:
American Agriculturist, with Almanac,
Orange Judd Farmer, with Almanac,
N. E. Homestead, with Almanac,
Northwestern Agriculturist,
American Poultry Journal,
Reliable Poultry Journal,
Agricultural Epitomist,
Farm and Fireside,
Poultry Monthly, Farm Journal,
Poultry Keeper. Farm Poultry.

For One Dollar and Ten Cents.

Gleanings and your choice of the following:
Practical Farmer, Prairie Farmer,
Michigan Farmer, Ohio Farmer.

For $1.25.—Gleanings and Rural New-Yorker.
For $1.30.—Gleanings and National Stockman.
For $1.50.—Gleanings and Cosmopolitan or McClure's Magazine or American Garden.
For $2.00.—Gleanings and Country Gentleman.
For $2.50.—Gleanings and Review of Reviews.
For $2.00.—Gleanings and Pacific Rural Press.
For $1.10.—Gleanings and Kansas Farmer.

These rates good also for new subscribers.

HOW OFTEN HAVE YOU BEEN DISAPPOINTED

after buying a nice handkerchief, and taking it home, to find it all cotton, non-absorbent, and just a useless ornament?

So few store-keepers realize the necessity of a linen handkerchief, and because the cotton ones are cheaper to buy, they buy them instead of linen.

Our specialty is linen handkerchiefs—pretty, absorbent, daintily embroidered, hemstitched to prevent fraying — an entirely satisfactory article.

We especially advertise for Christmas the following, which we consider the most popular quality we have ever imported.

Our imported, Belfast Linen, Embroidered, Hemstitched, Ladies' Handkerchief, very sheer, and equal to most 25 ct. ones. We will send you three (3) for 50 cts., by mail, postpaid.

Here is a handkerchief for a gentleman. We have an All-linen, Hemstitched, Laundried, Large-sized Handkerchief. This is an extra good value, and not to disappoint the gentlemen; will sell at same price—(3) three for 50 cts. by mail postpaid.

F. E. EDWARDS & CO.,

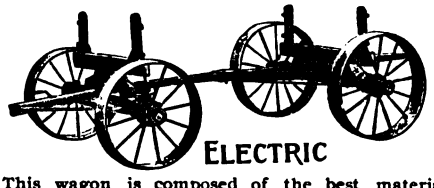
Dept. H. MEDINA, OHIO.

References.—The A. I. Root Co., and Medina County National Bank.

In writing, mention Gleanings.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low-down wagon at a reasonable price.



This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc Guaranteed to carry 4000 pounds. These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low-down wagon at will. Write for catalog of the full "Electric Line" to Electric Wheel Co., Box 95, Quincy, Illinois. *Mention Gleanings.*

An Opportunity to Double Receipts.

Rochester stock is 100 well known to require comment. We want one bee-keeper in every county to sell our nursery prodncts. Liberal pay. H. C. Ahlers, a West Bend, Wis. bee-keeper, received $81.00 for Nov. Write immediately for further particulars.

First National Nurseries, Rochester, N. Y.

Digitized by Google

Some Correspondents

MISS ADA L. PICKARD,
Richland Center, Wis.

HERBERT CLUTE,
Greenwood, Wis.

That will contribute to the Review for 1900 are pictured on this page. For some time there has been complaint that the Review devoted too much space to the subject of comb-honey production, to the neglect of extracted honey. This defect is to be remedied in 1900. "Ladies first," is a good motto, and the January Review will probably contain an article from Miss Ada L. Pickard, of Richland Center, Wisconsin. Ever since she was a little girl she has worked in the apiary with her mother; and, in 1898, she managed an out-apiary of 100 colonies; securing 16,000 pounds of extracted honey as the result of her labor. In my Wisconsin trip last summer I found her in an out-apiary fifteen miles from home. In the January Review she will describe her hives, implements, methods, etc., and I will give a frontispiece showing her out-apiary with its background of wooded hills, and a little brook in the foregrond.

Next on the list is Mr. Herbert Clute, of Greenwood, Wisconsin, who was brought up in the bee business by that old veteran, Frank McNay; and who, during the five years that he has been in business for himself, has produced about 75,000 pounds of extracted honey, building up a nice apiary, honey-house, and wintering-cellar; all of which he will describe, and I will illustrate, in an early issue of the Review.

Harry Lathrop, of Browntown, Wisconsin, is far from being a stranger to the apicultural world, having been in the business about eighteen years. During this time he has built up and managed, by means of some help, two apiaries, while being station-agent for a railroad, and written some most excellent and practical articles for the journals. In the Review he will tell how he produces extracted honey with eight-frame Langstroth hives; and I will give a picture of his apiary—the neatest that I saw in Wisconsin.

Few men have had more experience in the production of extracted honey than has N. E. France, of Platteville, Wisconsin. I have been figuring it up, and, as nearly as I can make it out, he has, in the past twenty years, produced at least 300,000 pounds of extracted honey. When I was at his place I was particularly struck by his practical, systematic, business-like methods; and he has promised to tell the readers of the Review about these methods before the opening of another season; and I have about half a dozen most excellent photographs with which to illustrate his articles.

One dollar will get the Review for 1900—and twelve back numbers will be sent free.

HARRY LATHROP,
Browntown, Wis.

N. E. FRANCE,
Platteville, Wis.

W. Z. Hutchinson, Flint, Mich.

Digitized by Google

Do You Want to Make More Money on Your Farm?

Of course you do, and the best way to do it is to find out how others who are more successful do it by subscribing for

THE PRACTICAL FARMER,

OF PHILADELPHIA, PA.

The most thoroughly up-to-date and practical agricultural weekly published. It leads the agricultural thought of the country. **It is the only paper for which T. B. Terry writes,** and is the only farm paper published whose contents are directly applicable in an intensely practical manner to the every-day work on the farm. Its editors comprise the leading agricultural writers of the country

Its Unique Special Departments: Short Cuts; Mistakes, Failures, and Successes; Experience Pool; Farm Implement Annex, and Postal Card Correspondence, all supported by contributions from its subscribers, keep it in direct touch with its readers every week in the year. In addition, it has departments ably edited by the acknowledged experts in their various lines, devoted to the following subjects: Garden, Stock and Dairy, Horticulture, and Home Circle. Complete and reliable market reports every week. In fact, it contains every thing that goes to make it the best, brightest, and most practical agricultural paper published. **Subscription price, $1.00 per year.** Sample copies free for the asking.

THE PRACTICAL FARMER'S SUPPLY-CATALOG contains hundreds of useful articles for the home and on the farm, and at prices that will astonish you. Send for a copy. The price is a postal card addressed to The Farmer Co., Philadelphia, Pa.

Special Offer. By a special arrangement with the publishers of THE PRACTICAL FARMER we are enabled to offer both it and GLEANINGS until January 1, 1901, for the small sum of $1.10. Address all orders to GLEANINGS.

IF YOU ARE A BEE-KEEPER

and interested in farming, you want THE BEST FARMERS' PAPER IN THE WORLD. You will find it in

The : National : Stockman : and : Farmer

of Pittsburgh, Penn.

Editor Bee-Department, : Dr. C. C. Miller.

It is the best, the brightest, the purest. Thirty-six pages weekly. A sample will convince you. A postal request will bring it. We want to hear from every subscriber of Gleanings. Write us at Pittsburgh, Pa.

EXTRAORDINARY OFFER.

Gleanings in Bee Culture and The Ohio Farmer both One Year for Only $1.10.

A business bargain for the business farmer! The Ohio Farmer stands at the head of agricultural journals in America; costs more to publish, and gives more to its readers than any other paper of its kind. It is a FARMER'S paper—practical, reliable, and entertaining. Twenty pages weekly, with liberal illustrations, and complete market reports from all the leading market centers. Ten different departments. It will pay you in dollars and cents to read it a year. Sample copies free.

The Ohio Farmer, Cleveland, Ohio.

Root's Goods in Kansas.

Carl F. Buck, Augusta, Butler County, Kansas.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

For Sale. Apiary and poultry-ranch one mile from the village of Los Alamos, Santa Barbara Co., Calif., containing 28 acres; 800 fruit-trees and vines on the place; 100 hens and turkeys, 125 stands of bees, which produced 120 lbs. of extracted honey this season per colony; but one honey failure in 28 years. For further particulars

— ADDRESS —

Joel Hilton, Los Alamos, Santa Barbara Co., Cal.

Wanted to Move.

Carload of Bee-keepers' Supplies.

The A. I. Root Company's make—the best. The Prices are right. You can help us more by sending your orders early. *Forty-page catalog will be sent free.*

JNO. NEBEL & SON, HIGH HILL, MO.

Digitized by Google

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.] [Price without postage.

8 | Bible, good print, neatly bound 20
10 | Bunyan's Pilgrim's Progress** 50
20 | Illustrated Pilgrim's Progress** 75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6 | First Steps for Little Feet 50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

| Christian's Secret of a Happy Life,** 50c; cloth 1 00
8 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon* 10
1 | Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper 5
2 | Same, board covers 20
5 | Same, words and music, small type, board cov. 45
10 | Same, words and music, board covers 75
3 | New Testament in pretty flexible covers 05
5 | New Testament, new version, paper covers 10
5 | Robinson Crusoe, paper cover 10
4 | Stepping Heavenward** 18
15 | Story of the Bible** 1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

| "The Life of Trust," by Geo. Muller** 1 25
5 | Tobacco Manual** 45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15 | A B C of Bee Culture, cloth 1 10
| Advanced Bee Culture, by W. Z. Hutchinson ... 50
3 | Amateur Bee-keeper, by J. W. Rouse 22
14 | Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., § 2 36
21 | Same, Vol. II., § 2 79
| Same, Vols. I. and II., postpaid 5 25
10 | Bees and Honey, by T. G. Newman 90
10 | Cook's New Manual, cloth 1 15
5 | Doolittle on Queen-rearing 95
2 | Dzierzon Theory 10
3 | Foul Brood; Its Natural History and Rational Treatment 22
1 | Honey as Food and Medicine 05
15 | Langstroth Revised, by Chas. Dadant & Son 1 10
15 | Quinby's New Bee keeping 1 40
| Thirty Years Among the Bees, by H. Alley 50
| Bee Keeping for Profit, by Dr. G. L. Tinker 25
5 | The Honey bee, by Thos. William Cowan 95
| British Bee keeper's Guide book, by Thomas William Cowan, England ‡ 40
8 | Merrybanks and His Neighbor, by A. I. Root ... 15
4 | Winter Problem in Bee keeping, by Pierce 46
| Bienenzucht und Honiggewinnung 50

Or "Bee Culture and the Securing of Honey," a German bee book by J. F. Eggers, of Grand Island, Neb. Postage free.

MISCELLANEOUS HAND-BOOKS.

5 | An Egg farm, Stoddard** 40
5 | A B C of Carp Culture, by Geo. Finley 25
5 | A B C of Strawberry Culture,** by P. B. Terry. 35

Probably the leading book of the world on strawberries.

8 | A B C of Potato Culture, Terry** 35

This is T. B. Terry's first and most masterly work.

| Barn Plans and Out-buildings* 1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15 | Draining for Profit and Health, Warring 1 35
10 | Fuller's Grape Culturist** 1 15
8 | Domestic Economy, by I. H. Mayer, M. D.** ... 30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Farming for Boys* 1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

| Farming with Green Manures, postpaid 90
7 | Farm, Gardening, and Seed-growing** 90
| Fungi and Fungicides, paper, 50c; cloth 1 00
12 | Gardening for Pleasure, Henderson* 1 35
12 | Gardening for Profit** 1 35
8 | Gardening for Young and Old, Harris** 1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants 20

This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse construction, by Prof. Taft** 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay** 1 35
5 | Garden and Farm Topics, Henderson** 60
| Gray's School and Field Book of Botany 1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper* 20
5 | Gregory on Onions, paper* 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen 05
10 | Household Conveniences 1 40
2 | How to Propagate and Grow Fruit, Green* 15
10 | How to Get Well and Keep Well 90

An exposition of the Salisbury system of curing disease by the "lean-meat diet."

2 | Injurious Insects, Cook 10
10 | Irrigation for the Farm, Garden, and Orchard* 1 10

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7 | Market-gardening and Farm Notes 75
10 | Success in Market-Gardening* 90

This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

8 | Maple Sugar and the Sugar-bush** 32
4 | Peabody's Webster's Dictionary 10

Over 30,000 words and 250 illustrations.

Digitized by Google

3 | A B C of Potato Culture, Terry** 35
This is T. B. Terry's first and most masterly work.
| Barn Plans and Out-buildings* 1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25
The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.
15 | Draining for Profit and Health, Warring 1 35
10 | Fuller's Grape Culturist** 1 15
8 | Domestic Economy, by I. H. Mayer, M. D.** ... 30
This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.
10 | Farming for Boys* 1 15
This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.
| Farming with Green Manures, postpaid 90
7 | Farm, Gardening, and Seed-growing** 90
| Fungi and Fungicides, paper, 50c; cloth 1 00
12 | Gardening for Pleasure, Henderson* 1 35
12 | Gardening for Profit** 1 35
8 | Gardening for Young and Old, Harris** 1 25
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.
3 | Grasses and Clovers, with Notes on Forage Plants 20
This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.
10 | Greenhouse construction, by Prof. Taft** 1 15
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.
15 | How to Make the Garden Pay** 1 35
5 | Garden and Farm Topics, Henderson** 60
| Gray's School and Field Book of Botany 1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper* 20
5 | Gregory on Onions, paper* 20
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.
| Handbook for Lumbermen 05
10 | Household Conveniences 1 40
2 | How to Propagate and Grow Fruit, Green* 15
10 | How to Get Well and Keep Well 90
An exposition of the Salisbury system of curing disease by the "lean-meat diet."
2 | Injurious Insects, Cook 10
10 | Irrigation for the Farm, Garden, and Orchard* 1 10
By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.
7 | Market-gardening and Farm Notes 75
10 | Success in Market-Gardening* 90
This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.
3 | Maple Sugar and the Sugar-bush** 32
4 | Peabody's Webster's Dictionary 10
Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers 30
6 | The same in cloth covers 65
| Nut Culturist, postpaid 1 50
3 | Onions for Profit** 40
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.
| Our Farming, by T. B. Terry** 1 50
In which he tells "how we have made a run-down farm bring both profit and pleasure."
This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.
We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.
1 | Poultry for Pleasure and Profit.** 10
8 | Practical Floriculture, Henderson.* 1 10
10 | Profits in Poultry.* 75
2 | Practical Turkey-raising 10
By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.
2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character.** 15
1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown 08
This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.
10 | Talks on Manures* 1 35
7 | Ten Acres Enough 75
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases 10
5 | Tile Drainage, by W. I. Chamberlain 35
Fully illustrated, containing every thing of importance clear up to the present date.
The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.
3 | Tomato Culture 35
3 | Vegetables under Glass, by H. A. Dreer** 20
3 | Vegetables in the Open Air 20
This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.
3 | Winter Care of Horses and Cattle 25
This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.
3 | Wood's Common Objects of the Microscope** .. 47
8 | What to Do and How to be Happy While doing It, by A. I. Root 42

The A. I. Root Co., Medina, O.

Digitized by Google

DO YOU WANT TO MAKE SOME MONEY?

OUR PRIZE-WINNING White Leghorns, Barred and Buff Plymouth Rocks, Buff Cochins are money-makers. Utility and fancy combined. Friends, they will help to lift that mortgage. One thousand fine birds for sale at reasonable prices. Satisfaction guaranteed. Catalog free.

CRESCENT FARM, : BOX W, KENT, OHIO.

E. T. BLOOD, MANAGER.

When writing to advertisers please mention Gleanings.

An Egg Maker

means a money maker. Green Cut Bone prepared by .... **Mann's New Bone Cutter** doubles the egg product. Mann's Granite Crystal Grit, Mann's Clover Cutter and Swinging Feed Tray fill about every poultry requirement. Catalogue **FREE.**

F. W. MANN CO. Box 37, Milford, Mass.

In writing, mention Gleanings.

WE TRUST THE PUBLIC

and send our Incubators to any responsible person. No one should buy an Incubator and pay for it before giving it a trial. It is made so that nobody can fail with it. A child can run it. 10 cts. worth of oil will make a hatch. It beat all others at World's Fair, Nashville and Omaha Expositions. We are sole manufacturers of the celebrated New Premier and Simplicity Incubators. Catalogue 5 cts. Plans for Poultry Houses, etc., 25c.

Columbia Incubator Co., 8 Adams St., Delaware City, Del.

In writing, mention Gleanings.

Strong, Healthy Chicks

are hatched by our incubators, and more of them than hens can hatch. Why? Because our regulator never fails to keep the heat just right. Catalogue printed in 5 languages gives full descriptions, illustrations and prices, and much information for poultry raisers. Sent for 6 cents.

DES MOINES INCUBATOR CO., Box 508 Des Moines, Ia.

In writing, mention Gleanings.

ROOM AT THE TOP Recognizing that there was "room at the top," we have issued not an ordinary catalogue but the

20th Century Poultry Book.

Contains the latest and best thought on the poultry question, from the egg through all its changes, to the market. No subject missed. Written from practical experience. The world renowned Reliable Incubators and Brooders, used all over the U. S. and in 51 foreign countries, receive deserved attention. Book mailed anywhere for 10c.

RELIABLE INC. & BROODER CO., Box B 49 Quincy, Ill.

In writing, mention Gleanings.

HATCH with the perfect, self-regulating, lowest priced first class hatcher—the

EXCELSIOR Incubator

Hatches the largest per cent. of fertile eggs at the lowest cost.

Circulars free. Send 6c. for Illus. Catalog.

GEO. H. STAHL, Quincy, Ill.

In writing, mention Gleanings.

Pierce FARM Engines.

3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. Pumping Engines all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO., BOX 17, Racine, Wis.

310 First Premiums

Awarded to the PRAIRIE STATE INCUBATOR. Guaranteed to operate in any climate. Send for catalogue.

PRAIRIE STATE INCUBATOR CO. Homer City, Pa.

INCUBATORS THE CYPHERS. One Style Only, OUR BEST. Warranted to last Ten Years without repairs and to out-hatch during three trials any other incubator—or none; THEN OUR YOUR MONEY BACK. Built for business—sold on honor. 16-page illustrated circular and price list FREE. Poultry Manual and Catalogue No. 74 (160-pages, 8x11in.) entitled, "How to make money with Poultry and Incubators" sent postpaid for 15 cts. in stamps—worth dollars. Address nearest office.

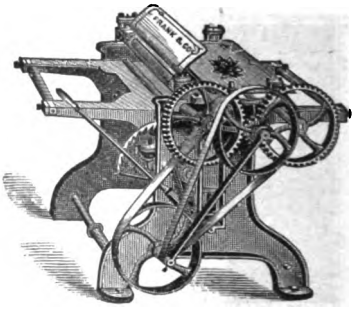
CYPHERS INCUBATOR CO.,
Chicago, Ill. Wayland, N. Y. Boston, Mass.

In writing, mention Gleanings.

Barnes' Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. *Machines on trial.* Send for illustrated catalogue and prices.

W. F. & John Barnes Co., 545 Ruby St., Rockford, - - Ill.



PLANERS

The above cut shows one of our small Planers, of which we make twelve different styles and sizes. Also large Planers, Band Saws, Buzz Planers, Moulders, Wood Lathes, and all kinds of

WOOD WORKING MACHINERY

Send for Catalogue.

The FRANK MACHINERY CO.

BUFFALO, N. Y.

In writing, mention Gleanings.

Digitized by Google

Bee=hives, Bee=keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.

Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.

BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity —one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free

Address E. KRETCHMER, Red Oak, Iowa.

HONEY-JARS.

One-pound, square, $4.70 per gross, with corks; 5 gross at $4.50 a gross.

OUTSIDE CASES.

For wintering bees; include bottom, body, gabled cover: 60c ea.; 10, $5.50. Catalog, describing every thing a bee-keeper needs, will be sent free.

I. J. Stringham, 105 Park Place, N. Y.

Your Need is shipping-cases, some five-gallon cans, a lot of those new Danz. cartons. Send for sample carton and prices, and be surprised.

Our Desire is to satisfy your need. We can do it with Root's goods at Root's prices. Cash paid for wax. Send for catalog.

M. H. HUNT & SON, BELL BRANCH, MICH.

Chrometype Photo-Engraving Co.

33 SHERIFF ST.

HALF TONE
THREE COLOR PROCESS
ENAMELED ZINC ETCHING

WRITE TO US TELEPHONE 1891

IF YOU DESIRE SUPERIOR QUALITY AND LOW PRICES

CLEVELAND, : : : OHIO.

1200 FERRETS FOR SALE. Small, medium, and large sized; some trained. **First-class** stock. New price list free

N. A. KNAPP,
Rochester, Lorain County, Ohio.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
Conqueror	3-in.	"	"	6.50;	"	1.00
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.

Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

Digitized by Google

Index to General Correspondence for 1899.

Adulteration Fraud....343
Adver'ments, Responsibility for..901
After-swarms, Preventing....829
Alfalfa in Colorado....470
Alfalfa v. Alkali Weeds....927
Alfalfa, Siberian....879
Alfalfa, Future Plant for Calif....750
Alfalfa Honey, Calif., Quality of..790
Alley Queen-traps....827
Amalgamation....343
Anti-saloon League Convention.. 26
Apiary of O. J. Hetherington....827
Apiary, Covered, in Florida....675
Apiary, Sweetwater....131
Apiaries, Pretty....168
Apiaries Near Highways....186
Apicultural Terms....184
Apis Dorsata....459
Apis Dorsata in Philadelphia....228
Apis Dorsata by Mr. Benton.... 47
Apis Dorsata Hard to Confine....466
Apis Dorsata Secured by Rambo.424
Apis Dorsata at Last....424-7
Apis Dorsata Caught and Gone...466
Apis Dorsata Illustrated....501
Apis Dorsata for Australia....572
Apis Dorsata, Habits of....424-7
Apis Dorsata, Tongues of, Not Long....572
Apis Dorsata, Danger of....530
Apis Dorsata, Doolittle on....387
Apple, Porter....623
Australia, Notes from....640
Baits in Supers....122
Barber Method with Comb Honey....309, 342, 431, 493, 494, 571, 838
Barber Plan with Ext. Honey....767
Barber Plan to Get Bees in Sections....463
Barber Plan to Get Bees in Supers....472
Barns, Draper....386
Barrels for Honey....388
Barrels Defended....939
Basswoods, Growing from Seeds....442, 579, 686
Bean, Soy (or Soja) for Honey...254
Beans, Bush Lima....730
Bearing the Market....637
Beef, Canned Roast....369
Bees Dying in Cellar.... 90
Bees Buried under Snow....296
Bees Flying in Mid-winter....274
Bees Flying in Zero Weather....229
Bees and Color....421
Bees of the World Compared....500
Bees of Paraguay....603
Bees and Skunks....746
Bees and Grapes....746
Bees Unable to Puncture Grapes.747
Bees and Fruit, Strong Testimony....430
Bees Seeing after Dark....531
Bees and Fruit....493
Bees and Comb....305
Bees Wintered in Open Shed....724
Bees Choosing Home before Swarming....763
Bees Working Night and Day....543
Bees in Field all Night....745
Bees in Japan....604
Bees in Santa Lucia Mountains...757
Bees and Black Queens....651
Bees Seeing in the Dark....566
Bees Working in Dark....354
Bees with Dirty Feet....508
Bees Dying in Cellar....804
Bees Swarming without Queen...723
Bees as Text-book....882
Bees, Black, Preferred to Italian..255
Bees, Child's Essay on....640
Bees, Cross, What to Do with....210
Bees, Dead, as Manure....327
Bees, Dead, Front of Entrances...400
Bees, Dislike for Black....168, 302
Bees, Endurance of in Cold Weather.... 79
Bees, Five-banded....886
Bees, Gentle, but Hustlers....888
Bees, How Many for Wintering..648
Bees, Italian, Yellow v. Maroon Bands....684
Bees, Japanese....124
Bees, Keeping Them Good-natured....255
Bees, Length of Life....576, 720
Bees, Moving by Night....920
Bees, Moving in Hot Weather....831
Bees, Non-swarming....353
Bees, Sleep of....882
Bees, Stingless....934
Bees, to Get Improved....171
Bees, Watering....920
Bees, Watering in Winter....420
Bees, When do They Swarm?....709
Bee-escape, Porter, to Use....398
Bee-fever, Bad Case of....504, 533, 575
Bee-hive, a Living....764
Bee-keeper in Lunatic Asylum...650
Bee-keepers in Legislature....436
Bee-keeping in Northern Calif... 16
Bee-keeping for Beginners....313
Bee-keeping in France and Ger..711
Bee-keeping in Tacoma, Wash...395
Bee-keeping on Housetop, by Rambler....265
Bee-keeping on Roof in Cincinnati....677
Bee-keeping, Uncertainties of....718
Bee-literature, Wrong....929
Bee-papers Necessity of Taking....603, 4
Bee-paralysis....435
Bee-paralysis in Florida....537
Bee-paralysis, Serious, in South..537
Bee-paralysis, Seriousness of....579
Bee-supplies for 1900....847-50
Bee-veil, to Attach to Hat....601
Bee-veils, How to Wear....765
Bee-veils with Horsehair Facing. 14
Bee-veils for Long-necked Men...543
Beeswax v. Paraffine for Jelly-tumblers.... 77
Bellflower of Cuba....82, 123
Bicycle, 1000 Miles on in Calif....273
Bicycling in Mts., by Rambler....135
Blacks v. Italians....687
Boilers, Steam....407
Boiling Honey....254
Boiling Foul-brood Germs, Cowan on....357
Born Again....366
Box-hive Man, Poem....167
Brood, Dead.... 42
Brood, Dead and Foul, by Cook...567
Brood, Dead, in Combs....615
Brood, Diseased.... 20
Brood, Diseased, in N. Y.... 748, 887
Brood, Poisoned....651, 724
Brood, Suspicious....723
Brood-combs, Age of....887
Brood-combs, Color of....210
Brood-nest, Contracting....886
Brood-combs Filled with Honey and Pollen....268
Brood-rearing, Temperature for..614
Buckwheat Country, Wheeling Through....767
Buckwheat Crop....731
Buckwheaters Defended....568
Bug, Stinging....723
Buzz-saw, Niver's Experience....315
Cage, Introducing, Norton's Improved....756
Calif. Bee-keepers' Convention...130
California Blue-gum....211
California Honey and Grocers....267
California Lilac....307
California, Central, for Bees....185
Cakes of Candy for Winter Feed.804
Calvert's Visit to Geo. Gould....470
Canadian Pure-honey Bill....332
Candied Honey, Retailing from Barrel....459
Candy, Scholz (Good), to Make...268
Candying, To Prevent....579
Cans v. Barrels for Honey....675
Cans, Square, for Holding Honey801
Cans, Square, Tare of....609
Cans, Square, Condemned....642
Canteen, Law Against....369
Canteen Law, Anti....553
Cappings, Color of, Dependent on Season....317
Cappings, Foreign Substances in 209
Cappings, Porous....210
Carniolans....387
Catch, Good.... 650
Catclaw of Texas....651
Cauliflower as a Honey-plant....774
Cellar Wintering, Fixing Hives for....472
Cellar, Too Many Colonies in....168
Cells Started at Different Times..637
Cells, Deep....303
Cells, Deep, in Comb-honey Supers....341
Cells, Doolittle, Argument for....528
Cells, Grafting, a la Doolittle....230
Cells, Why Six-sided....880
Cell-building, To Coax....932
Cell cup Bottoms....932
Cell-cups Fed from Worker-cells.638
Cell-cups, Shape and Size....638
Cell-cups, Starting in Queenless Colonies....797
Cell-cups, Increasing, Giving No Larger Queens....341
Cell-raising in Cool Weather....457
Cell-rising in Lower Story with Laying Queen....458
Century-plant for Honey....459
Changing One's Mind....345
Christs, False....322
Churches Stoning Women....255
Cleats, Handhole....341
Climate, Differences in....387
Clipping Before Selling Queen...674
Clipping Queen's Wings....300
Clipping to Prevent Swarming...472
Clipping Both Wings....209
Clipping, Jones Plan....673
Clipping, Practical Way....640
Clippings....94, 5
Clover, Alsike....459
Clover, Alsike, for Bees, Stock...503
Clover, Conditions of Growth....687
Clover, Crimson....281
Clover, Crimson, in Michigan....422
Clover, Crimson, between Fruit-bloom and Other Clovers....459
Clover, Sweet, for Bees and Stock 577
Clover, Sweet, for Forage....194
Clover, Sweet....19, 54, 5, 98, 149
Clover, Sweet, for Alkali Soils....140
Clover, Sweet, Stolley on....211
Clover, Sweet, for Road-making..502
Clover, Sweet, to Kill....316
Clover, Sweet, in Germany....327
Coffee a Honey-plant....422
Coffin-handles for Hives....298
Coggshall's Axioms....608
Coggshall's Big Yield of Honey..607
Colombia, Bees in....934
Colonies for Winter....723
Colonies, Size of for Winter....648
Colonies, Strong, for Ext. Honey 255
Colonies, Why Some Excel Others....308
Color-cards to Represent Honey....674, 826
Color-samples for Classifying Honey....802
Comb and Ext. at One Time..309, 431
Comb Built by Carniolans....212

Digitized by Google

Comb from which Bees have Died274
Combs Exposed to Freezing Temperature....400
Comb, Drone....353
Combs, Empty, Above or Under Hive....399
Combs, Cleaning up....878
Combs, Color in....253
Combs, Foul-broody, Washing, Dangerous....388
Combs, Soaking in Acid, Not Favored....303
Combs, Soaking in Carbolic-acid Solution....186
Comb Honey on the Plate.... 602
Comb Honey Prettiest in Plain Sections....722
Comb Honey without Separators ....259, '60
Comb Honey, Pop-holes in.... 6
Comb Honey, 10-cent 18
Comb Honey, Bruised, Repairing 19
Comb Honey, Candied....392
Comb Honey, Caring for....800
Comb Honey, Extra Fancy, Useless Grade....650
Comb Honey, Giving up for Ext..387
Comb Honey, Nature's Way....434
Comb Honey, Ridging of....170
Comb Honey, Selling 308
Comb Honey, Sheet for Covering in Car 789
Comb Honey, Water-soaked, Cause of....271
Comb-honey Production, Points.. 55
Comb-rendering Causing Sickness 791
Comb-honey Yarn....169
Commission-houses in Chicago...790
Commission Men Get Worst of it.710
Conventions in Europe.... 9
Cotton-seed Meal....443
Covers Sealed v. Absorbing Cushions....804
Cowan on Boiling Germs of Foul Brood 357
Cowan on Foul-brood Germs....356
Cowan's Loss of Children.... 30
Cow-peas....240, 326
Crane, Interview with....169
Craycraft, and Service to Cuba...262
Crops, Sure....928
Cross-breeding, Why Profitable ..877
Cuba, New Field for Americans...216
Cuba, Bee-keeping in Now 758
Cuba, Facts about....503
Cuba, Fleas and Reptiles of....215
Cuba, Insect-pests of....211
Cuba, Bee-keeping in.. ....7, 82
Cuba, Desolate Condition of.... 7
Cuba, Honey of 165
Cuba, Its Drawbacks....215, 300, 567
Cuba, Expense of Living there...230
Cuba, Those Starving in.... 7
Cuban Bellflower.... 82
Cuban v American Honey....133
Cuban Honey Amer. Competitor. 82
Cuban Honey No Competitor....261
Daisy Foundation-fastener 789
Danzenbaker Super....100
Danz. v. Niver, on Best Honey....650
Danzenbaker Hive.... 19
Death by Stinging.... 15
Dickel Theory....87, '8
Dividing to Keep Bees in Nuclei..260
Doctoring Without Medicine.150, 901
Doolittle on Color Question 710
Doolittle Plan of Queen-rear.141, 636
Doolittle on Maroon....567, 576
Doolittle Cell-building....797
Doolittle's Picture....722
Doolittle's Plan to Prev. Swarm.. 6
Doolittle's Prize Honey....838
Doolittle's Method in Nutshell..45–47
Dowie, Dr ....105, '6, 323, 367
Dragon-fly 354
Draper Barns....461, 493, 564
Draper Barns 8 Frames Wide....687
Draper Barns Pressed to Front...709
Draper Barns for Comb Honey...765
Draper Barn for Ills., L. Frame for California 830
Draper Barns, Convenience of....610
Draper Barns, Size of....386
Drone-cell Queen-cups....640
Drone-cells v. Doolittle cell-cups..571
Drone Comb....353
Drone-comb cells for Queen-rear.605
Drone Comb, Why Constructed...166
Drone v. Worker Comb in Sec'ns.385
Drones, Importance of....341
Drunkard at a Disadvantage....902
Dysentery of Bees....457
Dysentery from Lack of Food....165
Dysentery in Bee-cellars....137
Dzierzon Theory Not Fallacious..791
Eggs Laid per Day by Queen....508
Eggs of Queen Held over....710
Egg-laying of Queen....359
Egg-laying Dependent on Honey 11
Eggs, Sex, To Decide....298
Entrance Through Super....723
Entrances to Supers....493
Entrances, Snow over.... 94
Entrances, Wide and Deep....299
Entrances, Wide, Hot Climates...315
Entrance-guards and Their Uses.543
Eucalyptus, Honey from....531
European Bee-keeping 9
Excelsior Hive-cover....848
Exhibits, Judging by Points....723
Experiments Made at Root Co.'s..798
Experts v. Amateurs....762
Extracted Honey, Fiber Package 801
Extracting by Heat or Machine.301
Extracting Super to Coax Bees into Sections....309
Extracting-combs, Bees Clean'g..800
Extractor, Solar, Double Glass...343
Extractors, Large v. Small....573
Extractors, Solar, Exper. with.... 51
Fairs, Judging Honey by Points..724
Family, Supporting on ¼ Acre...193
Farmer Bee-keeper, Plea for.... 20
Feeding Back to Finish Sect'ns...611
Feeding Bees to Get Stores.... ..791
Feeding after Fruit-bloom....361
Feeding Outside v. Inside of Hive.... ....312, '13
Feeding, Stimulative....319, 385
Fences and Separators, Slats in..754
Fences, Ventilation Afforded by. 19
Flights to Avoid Constipation in Bees....211
Florida, Recent Freeze in.... 229
Forming Nuclei, Somerford's Method 260
Foul and Other Forms of Diseased Brood....828
Foul Brood.... 98
Foul Brood in Ontario....210
Foul Brood Rapid in Its Action...710
Foul Brood in Cuba....315
Foul Brood, Ropiness of....878
Foul Brood, To Boil Germs of..48, '9
Foul Brood, Battling with.... 48
Foul Brood, New Treatment for..310
Foul Brood, Diagnosing with Microscope....390
Foul Brood, Antiseptics for....388
Foul Brood, Stamping out....675
Foul Brood, Danger from Wrong Diagnosis 390
Foul Brood, Boiling....342
Foul Brood, Latest Way to Treat.388
Foul Brood, Hushing up....209
Foul Brood, Making Sure of....223
Foul-brood Combs, Boiling 78
Foul-brood Cure, New....878
Foul-brood Germs, Cowan....356, 388
Foul-brood Germs, Boiling...222, 254
Foul-brood Germs, Killing, Scientific Exactness 223
Foul-brood Germs, Spores v. Bacilli....356
Foul-brood Spores in the Air....528
Foul-brood Honey, Time to Boil..210
Foul-brood Inspector France....674
Foul-brood Inspector's Report....176
Foul-brood Law of Illinois....209
Foul-brood Law of Michigan....254
Foundation from Rietsche Press.254
Foundation Stayed with Splints..751
Foundation in Brood-frames.... 99
Foundation in Sections....923
Foundation with Thick and Thin Base 253
Foundation Two Years Old....209
Foundation with White Deposit..400
Foundation, Old....302
Foundation, 18 ft. to Pound....766
Foundation, Fasten'g in Frames.314
Foundation, Drawn, No Advantage 274
Foundation, Drawn, Advantages 85
Foundation, Drawn, Experim'ts 83
Foundation, When to Put into Sections....183
Foundation, Test of Extra Thin..220
Foundation, Old v. New Process 712–715
Foundation, Weed v. Ordinary 712–715
Foundation, New, Tested in Canada 712–715
Foundation, New, Tested.... 387
Foundation, Position in Frame...253
Foundation, Weed, and Its Superiority 536
Foundation-fastener, Daisy, Criticised....753
Frame, Hoffman, and Propolis...896
Frame, Hoffman, v. Others....341
Frame, L., for Comb Honey....458
Frames and Sections, Outside, to Get Filled....827
Frames, Metal-cornered....186
Frames, Shallow v. Langstroth...573
Frames, Self-spacing....423
Frames, Spacing, Narrow....719
Frames, Wide, v. Supers.... 96
Frames, Wide, Get out of Super..342
Frames, Staple-spaced, Success...131
Frame-support, Novel....391
Fruit-bloom Fertilization....212
Fruit-trees for Shade 494
Fruit-trees, Spraying....106, 222
Gasoline-engines....804
Gearing for Extractors....391
Gleaning from Gleanings....531
Gloves for the Apiary....422
Glucose....185
Glucose, Effect on Market....133
Glucose as Bee Feed....878
Grading by Pictures 393
Grading of Honey 569
Grading of Comb Honey....644
Grading, Simple Rules Pref'ble..644
Grading, Uniform 421
Grading, Western and Eastern...393
Granulation Caused by Ext'ing..644
Grapes, Spraying....919
Grapevines, Swarming the....730
Green, Paris, Using....372
Grip, The....108
Grip More about....237
Handholes, Cleats for.... 99
Hauling Bees, Miller's Rack for..318
Havana, Plain Facts about 503
Healing, Magnetic....899
He or She....80–82, 213, 214, 318, 421
Hive for Comb Honey 273
Hive of Glass....299
Hive, Best for Extracted....610, 830
Hive, Gallup, and Frame....359
Hive, Large, for Comb Honey.... 8
Hive, Long-idea....929
Hive, Non-swarming 400
Hive, Size, Depend on Locality...496
Hive, Small, Bad Record for....542
Hive for Comb Honey, Large v. Small 756
Hives with Hoffman Frames 166
Hives with Hand-cleats....256
Hives, Large, and Egg-laying Capacity of Queens 460
Hives, Large, by Dadant....460
Hives, Large, for Winter....461
Hives, Large, and Good Queens..539
Hives, Large v. Small..134, '5, 351, 573
Hives, Large, Discussed, Dadant.257
Hives, Large, Faults of 8
Hives, Large, for Ext. Honey....925
Hives, Large, Necessary for Good Queens.... ....90, '1
Hives, Large, Two Points on.... 89
Hives, Large, One Brood-nest, Why Safe....344
Hives, Large v. Small, Winter....257
Hives, Large, Adapted to Queen..257
Hives, Large, Figures Favoring..538
Hives, Large, Symposium on...460–4
Hives, Large.... 18
Hives, Size of 99, 171, 212
Hives, Size and Shape of 51

Digitized by Google

Hives, Size, Matter of Locality... 97
Hives, Doolittle.....185
Hives, Dadant-Quinby, v. 2 and 3 Story L.....344
Hives, Numbering.....884
Hives, Proper S ze of.....608
Hives, Discussion of.....124
Hives, Shade for.....719
Hives, Best, for Ext. in Calif.....496
Hives, Deep, Dadant.....391
Hives, Small, Perfect for Comb Honey.....462
Hives, Small, for Comb Honey...928
Hives, Long-idea, Poppleton.....463
Hiving-box, the Jones.....803
Hive-covers as Lids.....494
Hive-making by Hand Defended 55
Hive-tools.....543
Hoffman Frames, Short Top-bar.351
Hoffman V Edge Superior to Sq..722
Holtermann's Visit to Root Co....798
Holtermann's Hive-cover..... 5
Home of the Honey-bees, Holtermann at.....798
Home of the Honey-bees Thro' Camera.....839-47
Honey a Cure for Smallpox.....424
Honey a Fat-producer..... 79
Honey as a Daily Food.....794
Honey as a Healthful Food.....711
Honey as a Medicine.....711
Honey Candying.....186
Honey for Canning..... 41
Honey in Plain Sections.....679
Honey in Plain Sections at Fairs 18
Honey Candying in Barrels.....280
Honey Not Advancing, Why.....674
Honey Declining in Price.....424
Honey for Horse Feed.....423
Honey from Arizona..... 79
Honey from Jamaica, Logwood...272
Honey Main Part of the Meal.... 826
Honey Market of New York.....349
Honey Near National City. Cal...131
Honey of Wis. for 10 Years.....718
Honey on Commission v. Sale.....677
Honey Produced in 1899.....170
Honey Reports, Inflated, Condemned.....710
Honey Sales Depend on Quality 12
Honey Season at Marengo.....601
Honey Soaking in Cypress Bbls.. 19
Honey v. Cod-liver Oil.....457
Honey, Adulterated, in U. S.....457
Honey, Boiling, Howe on.....306
Honey, Boiling, Temperature of..306
Honey, Boiling point of.....347
Honey, Boiling-point, Higher than 212°.....254
Honey, Chunk, Preparing for Market..... 51
Honey, Color of.....580
Honey, Comb and Extracted at one Time.....309, 493
Honey, Comb, Hauling 5 Tons 300 Miles.....265
Honey, Danzenbaker's.....221
Honey, Dark, for Popcorn Crisps 399
Honey, Eating a Pound.....319
Honey, Extra Fancy, Bearing Market.....673
Honey, Grading.....422
Honey, Secret of Selling..... 12
Honey, Selling at Home.....567
Honey, Selling, Pleasures of.....318
Honey, To Keep Clean.....828
Honey, To Serve.....919
Honey-boards, Wood-zinc v. Plain Sheet..... 95
Honey-dew, Ruining the Market.603
Honey-dew of Insect Origin..542, 565
Honey-dew, Its Nature, by Cook 79
Honey-dew, why Plentiful.....686
Honey-dew, New Kind.....880
Honey-dew, Origin of.....168
Honey-dew, Do Bees Consume More of it?.....421
Honey-leaflet Not a Success..... 19
Honey-leaflet a Success.....141
Honey-leaflets, Shorter.....892
Honey-leaflets Useful.....269, '70
Honey-leaflets, When an Advantage..... 87
Honey-pitchers.....642
Honey-plants, New Fine.....800
Honey-queen, Miller's.....637
Honey-queen, Record-breaking...765
Horse, To Handle among Bees...399
Horse-powers to Run Machinery.804
House-apiary, Objections to.....230
Hybrids.....169
Increase, To Prevent, Getaz.....304
Increase, Artificial, Somerford...429
Increase, Easy Way to Make.....391
Increase, Preventing.....122, 398, 829
Increase, To Get Greatest from a Colony.....139
Increase, Rapid.....226, '7
Indexes to Bee-journals.....124
Inky Drops from Smoker.....789
Irrigation, Sub, in Open Air.....239
Israel, J. P.....174
Italianizing, When.....254
Italians, Golden, Origin of.....886
Italians v. Blacks..... 78
Italians v. Blacks for Honey..... 274
Italians and Five-banders.....719
Jamaica Notes..... 86
Jamaica, Size of.....919
Jars, Mason, for Ext. Honey.....528
King-bird, Plea for.....436
King-bird, Worst Enemy of Bees.354
King-birds, Pest in Apiary.....532, '3
King-birds, Two Kinds.....566
Lamp, Alcohol.....934
Langstroth Fund.....299
Language, Loose Use of.....346
Large Hives, by Dadant.....257
Large Hives, Objections to..... 8
Larvæ, Age for Queen-rearing....834
Law, Pure-food.....133
Law, Pure-food, To Secure a..... 13
Leahy Mfg. Co.....344
Leak, a Bad.....676
Lessons from Zero Weather.....195
Lettuce, Grand Rapids.....280
Lecture on Bees in School.....496
Linden, A New.....877
Logwood Honey.....272
Love Thy Neighbor as Thyself...190
Manipulations from Spring to Honey-flow..... 93
Manufacturers with Ax to Grind.752
Manure, Green.....443
Markets, Breaking Down.....350
Meal, Feeding Bees.....274
Medicine, Danger of Patent.....406
Meek shall Inherit the Earth.....475
Melon-growing Region of Colo...470
Micrometer, Measuring with.....637
Microscope Not Good for Foul Brood.....390
Michigan, Sure Crops.....928
Miller's Test of Plain and Old Sections.....638
Miller Bee-escape, That.....566
Mississippi, Carrie Root in.....433
Mob Law.....440
Money Lost in Mails.....623
Morton's Swarm-catcher, Corrections.....270
Morton's Method of Hiving Swarms.....172, '3
Mosquitoes in Florida.....676
Moth-worms in Fence Honey.....139
Moth-worms..... 98
Motor, Keely.....149
Moving Bees..... 15
Nails for End-spacers for Brood-frames.....494
Nectar, Why None from Flowers.649
Niver on Grading.....393
Niver on Witness-stand.....568, 607
No-drip Shipping-cases.....722
Norfolk, A. I. Root in.....476
Nozzles, Hinging.....924
Nuclei by Somerford Plan....361, 464
Nuclei, Good Plan to Form.....260
Odor Affecting Bees.....542
Ohio State Fair.....693
Oleomargarine, How Dairymen Fought.....183
Oregon Bee-keeping.....311
Ostrich Farm at Pasadena.....759
Packages for Extracted Honey...170
Paddles for Killing Bees.....299
Paraffine in Beeswax.....186
Paralysis, McMurray on.....485
Pasturage, Artificial.....230
Percentages Loss During Winter.170
Pettit Idea.....140
Pettit Set Right.....352
Pickled Brood in New York.....748
Pineapples in Florida.....665
Plain and Old-style Sect'ns Test.638
Plain Sections Too Well Filled..809
Plain Sections.....395
Plain Sections Come to Stay.....319
Plain Sections Ahead of Beeway.194
Plain Sections a Success.....128
Plain Sections and Fence Separ..129
Plain Sections Favored.....669, '70
Plain Sections Putting Others in Shade..... 18
Plain Sections Preferred to Old..679
Plain Sections, 4×5, Indors...679, '80
Plain Sections, Evener Filling ..274
Plain Sections, Better Filled, Higher Prices.....128, '30
Plain Sections, Ideal, Better Filled.....347
Plain Sections, Strong Testimony for.....579
Plain-section Honey Prettiest.....722
Pollen in Combs in Winter.....490
Pollen in Brood-combs, Winter...422
Pollen in Queen-cells.....528
Pollen on Bees' Legs.....791
Pollen, how Gathered.....838
Porter Escape, to Use.....388
Potato Crop for 1899.....609
Potato that Will Not Scab.....148
Potato, Craig.....327
Potatoes under Straw.....777
Potatoes, Maule's Commercial.....777
Potatoes, Digging by Machinery.107
Potatoes, Digging.....729
Potatoes, To Get Extra Early.....240
Potatoes, New Varieties.....325
Potatoes, Non-scabby.....240
Potatoes, Originating New.....370
Potato diggers.....622
Prayer, How and Why Answered.....145, 7
Premium on Good Bees.....612
Prince and Pauper.....285
Propolis, Source of.....280
Punctuation in Gleanings..... 42
Pure-food Investigat'n, Chicago. 421
Queens Affected with Foul Brood 458
Queens by the Doolittle Method.388
Queens Laying in Queen-cells.....424
Queens Mailed to Jamaica.....256
Queens Missing in Colonies.....734
Queen, $200.....839
Queens, Age when First Laying.841
Queens, Balled..... 6
Queens, Egg-laying Dependent on What?..... 11
Queens, Giant, to Rear..... 14
Queens, How Lost.....884
Queens, Hybrid, for Breeders.....674
Queens, Imported.....128
Queens, Importing.....185
Queens, Economic Value of.....210
Queens, Italian, To Judge Purity.608
Queens, $100.....800
Queens, Pettit's Hint.....921
Queens, Rage for Color.....708
Queens, Rearing Good Ones.....397
Queens, Special Breeding.....186
Queens, Two in a Hive.....565
Queens, Wintered Virgin, Fertilized in Spring.....877
Queens, What Killed Them?.....686
Queens, to Find.....543
Queens, Nat'r'l, v. Doolittle Plan.427
Queen-cells, Holy Land Colony..707
Queen-cells from Worker-cells..835
Queen-cells, Destroying to Prevent Swarming.....585
Queen-cells, Larger.....817
Queen-clipping Condemned.....489
Queen-excluders, To Use.....489
Queen-excluders Necessary in Extracting.....497
Queen-rearing, Alley Method..494-7
Queen-rearing, Doolittle's Latest Freak..... 45
Queen-rearing, Doolittle Method 14
Queen-rearing, Larvæ for.....834
Queen-rearing, New Things on..835
Queen-rearing, Pridgen's Hints..908
Quotation-marks, Useless..... 14
Rabbets, Notching.....188

Digitized by Google

Rain, Artificial....256
Rambler among Miners of Scott Valley.... 91
Rambler Crossing Boundary of Oregon....180, '1
Rambler on Way to Seattle....225
Rambler at Portland, Ore....357
Rambler in Tacoma....432
Rambler and Indian Maiden....457
Rambler at Seattle....460
Rambler at Palo Alto....539
Rambler and McNay Crow Hunt.612
Rambler at Elon Hart's....759
Rambler and Brodbeck....792
Rambler on Gold mining Profits.831
Rambler's Mistake....505
Rambler's Visit to Newman....506
Rambler's Egg Story....644
Rambler's Up-to-date Honey-house....681
Rambler's Solar Extractor....682
Rambler's Honey-strainer....683
Rambler's Scale....716
Rambler's Veil....717
Rape, English....326
Rays of Dark....385, 436
Recipes, Selling....550
Record, Howe's Extracting....884
Record-keeping of Hives....825
Review Critic, Was He Fair?....345
Rheumatism, Cure for....901
Rheumatism Cured by Stings....343
Richmond, A. I. Root in....511
Roads, Good....731
Robbers Once, Always so....758
Robbing Deaf and Lame People..812
Robbing the Sick....731, 900
Robbing Bee-keepers....609
Robbing, Harry Howe on....387
Robbing, To Stop.... 19
Root, Sec., and Chaplains....901
Root Co.'s Plant....839–847
Royal Jelly, Queen-cell, for Doolittle Cups....673
Royal Jelly Not Essential for Cell-cups....804
Satan Casting out Satan....403
Saws Sharpened by Machinery...328
Scare Sensational....405
Season, Strangeness of....638
Sections in Outside Rows Super..166
Sections Daubed with Propolis More Salable.... 42
Sections Discussed by Commission Man....263
Sections 4×5 Condemned....752
Sections with Daubed Faces....789
Sections 5¼x4¼x1¼ too Thin....766
Sections 3⅝x5 v. 4x5....125
Section, Evolution of....125
Section, Tall, Adverse Criticism..887
Sections, First....125
Sections, Filling of....166
Sections, Greasy....746, 929
Sections, History of....434, 435
Sections, Ideal, Preferred....838
Sections, Old-style, Ahead....638
Sections, Old, Preferred to Plain.640
Sections, Old-style, Well Filled...578
Sections, Plain, Argum'ts for..126, '7
Sections, Tall v. Square..315, 919, 931
Sections, Tall v. Square, Unfair Comparisons.... 96
Sections, Tall, Hetherington on..748
Sections, Tall, and T Super, Beautiful....601
Sections, Tall, on Sides in Hive..533
Sections, Tall, Preferred to Sq....349
Sections, Selling by Piece.168, 210, 303
Sections, Segelken on....264
Sections, Square v. Tall....20, 127
Sections, Short Weight.... 642
Sections, Short-wt., Condemned..600
Sections, Unfinished, Emptied by Bees....746
Sections, To Start Bees in....309, 830
Sections, Starting Bees in with Extracting Combs....767
Sections, Starting Bees in with Extracting Super....309
Sections, Unfinished, Emptied in Upper Stories....746
Sections, Unfinished, in Fall....507
Sections, " Feeding Back611
Sections, Clean, More Salable....792
Sections, To Secure from Worms.877
Sections, Tall, Aikin on....127
Sections, Price of Old and New...745
Sections, Thickness of Blanks....745
Sections, Thin....607
Sections, to Produce Fat Ones....754
Sections, Weight when Filled....789
Section-holders v. T Supers.... 6
Segelken's Opinion on Tall Sections....263
Separators to the Top of the Sections.... 95
Separators of Wire Cloth.... 41
Separators, Hyde-Scholl.... 95
Separators, Perforated....314
Separators, Wood, v. Tin....316
Shade for Apiary....825
Sheets, Full, Desirable....923
Sheets, To Fasten....923
Shipping-case, No-drip, Inventor of....748
Shipping-cases, Modern Improved....50, '1
Shipping-cases, Root....131 '2
Skunks, To Kill....392
Smoker, Cold-blast, Defended....351
Smoker, Cold-blast, Plea for.... 49
Smoker, Crane, Criticised....888
Smoker, Crane, To Improve....754
Smoker, Hot v. Cold.... 49
Smokers Clogging up....171
Smokers, Cold-blast....536
Smokers, Inky....924
Snow, will it Smother Bees?....273
Soda, Nitrate of....443
Soja Bean for Honey....239, 254
Somerford Method with Nuclei..464
Somerford on Artificial Increase 429
Sorghum Bad as Bee Feed....896
South Dakota, Wheelride in.... 27
Space between Separator and Comb Honey....745
Spelling, Reformed, Condemned 889
Spelling, Reformed....761
Spiders and Ants Killing Moths 750
Splints for Staying Foundation...751
Spores v. Bacilli, Difference between....388
Spores and Bacilli of Foul Brood 356
Spraying out of Season....387, 578
Spray-pump, New....827
Spraying Trees....222
Sting, Loss of, Not Fatal....541
Stings on a Horse.... 15
Stings, Remedies for....530
Stinging Episode of the Horse...361
Stinging, Do Bees Live After?....272
Stinging, Scientific....573
Stinging, Repeated, How it Feels573
Stores Necessary for Wintering In and Out....825
Strawberries in the Shade....194
Strawberries, Growing with Corn 327
Strawberries, Earliest....238, 444
Strawberries, Recommending New....281
Strawberry, Darling....622
Stung to Death....790
Sugar for Bee Candy....530
Sugar Consumed in England....458
Sugar Syrup, To Make....615, 724
Sugar, Cane, v. Honey....794—796
Sugar, Powdered, v. Corn Starch....530
Sugar, Proper Kind for Candy....615
Super Springs....399, 637
Super Springs, Thumbscrews, Wedges....141
Supers, T.... 18
Supplies and Root Co.... 97
Surgery, Fees for....900
Swarms, Absconding....676
Swarms, Time of Issuing....676
Swarms, After, Building up....470
Swarming Contagious....173
Swarming Reduced by Young Queens....297
Swarming, After, To Prevent....397
Swarming, Artificial....139, '40
Swarming, Drumming on Pans..531
Swarming, Prevention of....315, 169
Syrup Made by Percolator Plan...351
Tall Sections, Aikin on....127
Tanks for Extracted Honey....400
Tare on Extracted Honey....609
Tarred Paper for Bees.... 98
Taylor and the Review....885
Telephones for Indic'g Swarms..400
Temperature for Bee-cellars....804
Temperature for Brood-rearing...614
Terms, Technical, Apicultural....579
Tiles, New Trick in Laying....239
Tile-laying....254
Tires, Bicycle, To Mend....399
Tobacco and the President....658
Tobacco in Closets....897
Tool, Handy, for Apiary....184
Top-bars, Thickness of.... 97
Travel-stain or Propolis....888
Travel-stain Due to a Secretion..353
Travel-stain on Capping, Removing....179
Travel-stain Caused by what?.42—45
Travel-stain Re-reviewed....214, '5
Travel-stain Through Capping....422, 602
Travel-stain, Bleaching....342
Travel-stain, Cause of....176, 258, 272
Travel-stain Caused by Dirty Feet....574, 601, 602, 808
Travel-stain, Interesting Facts...270
Travel-stain, Theory of Cause....316
Travel-stain, What is it?....42—45
Travel-stained Honey, Bleaching....399
Transferring from Movable-frame Hives....297
Trees v. Shade-boards....529
Trimming, Accurate....923
Turnip, Seven top....628
Unions, The Two Compared....78
Uniting in the Brood Form....649
Vaseline, Bees fond of....542
Virgin Queen Caged....709
Washing Nostrils, etc., with Hot Water....104
Water for Bees in Cool Weather 458
Water for Nuclei....932
Water, Hard and Pure....355
Wax and Honey v. Honey Alone 801
Wax from Slumgum....124
Wax from Old Brood-comb....423
Wax, Cooling Slowly....122
Wax, Differences in....536
Wax, Easy Way to Render....343
Wax, Sulphuric Acid for....766
Wax, To Refine with Acid....543
Wax, What Colors?....177—179
Waxing Rubber Rings....650
Waxing Rubber Rings for Jars...565
Wax-worms, Smaller Size....673
Weather Almanacs....828
Weed Foundation, Latest Improved....217—219
Wells and Springs of Ohio....552
Windbreak of Evergreens....210
Windbreaks....170
Windbreaks for Hives....639
Windmills, Home-made....776
Windmills, Jumbo....776
Wide Frames, Old style....815
Winter Employment....933
Winter, Preparing 2-story Hives for....271
Wintering in the Cellar....168
Wintering in Wisconsin....466
Wintering, Figures by Lathrop..746
Wintering, Cellar....930
Wintering, Questions Concerning....398
Winter-cases for 12 Hives.... 98
Wire-cage Plan a Failure....934
Wiring of Frames, is it Necessary?....709
Wood v. Tin Separators for Wide Frames....182
Wood-fiber Packages for Holding Honey....801
Wood-zinc Honey-board v. Solid Sheet....256
Worker Brood, How did it Get there?....271
Workers, Laying, Plurality of ...676
Worms on Sections....878
Yellow v. Maroon on Italians 838
Yellow of Bees from Imported Queens....494
Zero Weather in Florida....229
Zinc, Perforated, for Extracting 186
Zion Tabernacle....773

Digitized by Google

Index to Illustrations.

Advance, Australia....718
Alley's Nurseries....606
Alley's Queen-cell Cages....606
Alley's System of Queen-rearing....604-606
Apiary in Cuba....348, '9
Apiary of G. Gould, Rocky Ford..470
Apiary up a Tree....541
Apiary on the House-top....267, 678
Apiary in San Gabriel Canyon...793
Apiary of Vernon Burt....798
Apiary, Littooy's....395
Apiary, Pallies'....432
Apiary, Mel Bonum....535
Apiary, Largest in Southern Hemisphere....535
Apiary, Hart's....759
Apis Dorsata, Different Varieties.501
Apis Dorsata, Running After....718
Association-brand Labels....891
Bare Tracks....833
Barn, Draper, and Dovetailed Hive Compared....537
Basswood, Giant....795
Bees, Different Specimens in India....501
Bee-hive, Living....764, '5
Bee-veil....543
Bee-veil, Rambler's Celluloid....717
Bicycle Bridge, Longest....396
Bottom-board and Hive-stand Combined....847
Bottom-board with Slanting Floor....847
Box-hive Man, by Secor....167
Brands for Pure Honey....891
California Lilac....306
Canning Comb Honey....52
Catch, Good....938
Catclaw Shrub, Texas....643
Cauliflower-field, March's....775
Cells, Alley's Method of Raising....604, '5
Cells, Doolittle, Raised in Medina498
Cells, Queen....23
Cell-building, Doolittle's....797
Chaparral Thicket....17
Cherry-growing in Oregon....311
Cleats for Hand-holes....99
Coggshall and Helpers for Outyard....10
Coggshall's, D. H., Residence....892
Comb in Hives for Months Not Travel-stained....43
Comb of Foul Brood....425
Comb Foundation, Development of....217-219
Comb Honey, Fancy, in Beeway Sections....363
Comb Honey, Broken....52
Comb Honey, Fancy, in Beeway Sections....461
Comb-honey Supers for 1900....894
Cook, The French....540
Cowan Four-frame Extractor-reel....850
Cover, Excelsior, for Dovetailed Hive....848
Cowan Two-frame Reel....819
Crate of 500 Sections....850
Crow's Nest....612
Crow's Nest, Wisconsin....613
Cuba, Shedded Apiary in....348, '9
Cuba, Osborn's Apiary in....348, '9
Dadant, Charles....257
Danzenbaker Honey in No-bee-way Section....221
Danzenbaker Prize Carton....100
Danzenbaker Section v. Ideal....126
Danzenbaker Sections v. 4¼....796
Danzenbaker Super....100
Deep-cell Foundation....217-219
Division-board Feeder....895
Doolittle v. Miller....837
Doolittle Cells, Raised at Medina.498
Doolittle Division-board Feeder..895
Doolittle's Cell-building....797
Dovetailed Hive....99
Dovetailed Hive on Slanting Bottom....847
Dovetailed Hive with Plain Section-super for 1900....847
Dovetailed Hive for 1900 with Beeway Sections....848
Dovetailed Hive with Ideal Section-super....849
Dowden Potato-digger....622
Draper Barn and Dovetailed Hive Compared....537
Drawn Foundation....217-219
Editor and Niver Discussing Grading....569
Eggers' Apiary Tool....184
Electric Plant at Home of the Honey-bees....845
Entrance-closer....687
Escape, Miller's....546
Excelsior Cover....848
Extractor-reel, Cowan....849
Extractor-reel, Cowan Four-frame....850
Fancy Honey According to Niver.428
Feeder, Foster's....895
Feeder, Rambler's....648
Foster's Feeder....895
Foul Brood, Specimen of....425
Foundation, Development of.217-219
Foundation, Weed, v. Ordinary....712-715
Gold-mining with Dry Washer...832
Gould's Colorado Apiary....470
Grading Honey, Niver on....393
Hand-hole Cleats for Hives....99
Hansen's Apiary (Rambler)....131
Hansen Introducing Queens....132
Hart, Elon....759
Hetherington, Capt. J. E....749
Himalayan Bees....500
Hive, Danzenbaker....941
Hive Large and Hive Small....537
Hive, Living Bee....767
Hive-scale, Rambler's....716
Hive-tool, Ideal....543
Hiving-box, Jones....803
Holtermann's Fancy Comb Honey in Beeway Sections....363
Home of the Honey-bees, View of..840
Home of the Honey-bees, Rear View....841
Home of the Honey-bees, Wood-working Shop....842
Home of the Honey-bees from the Rear....843
Home of the Honey-bees, Lumber-yards of....844
Home of the Honey-bees, Electric-light Plant....845
Home of the Honey-bees, Machine shop....846
Honey for New York Market....263
Honey in Beeway Sections....461
Honey, Grading....393
Honey-dew on Chestnut....880
Honey-dew, Insects that Produce....881
Honey-house, Rambler's....681
Honey-popcorn Pavilion....86
Honey-strainer, Rambler's Improved....683
Hutchinson, W. Z....936
Hutchinson, Miss....936
Ideal v. Danzenbaker Section....126
Introducing at Hansen's (Rambler)....132
Israel, J. P....175
Jar, The No. 25....850
Labels, Association-brand....891
Linden, Giant, Linwood Park....795
Machine-shop at Home of the Honey-bees....846
Mallow and Son....93
March's Cauliflower-field....775
Miller v. Doolittle....837
Morton Extension Pole....172, '3
Mule Kicking Hive....767
Nepaulese Bee-keeper of India...500
Newman Defending N.B.K.A....506
Niver and Ernest....569
Niver's Fancy....428
Niver's Grading of Honey....393
Ostrich and the Kid....[illegible]
Out-yard, Coggshall Going to....10
Pavilion, Popcorn....86
Pineapple-growing in Florida...685
Plain Section-supers for 1900....894
Potato-harvester, Dowden....622
Pridgen Cell building....797
Prune Orchard, Glimpse of....266
Queen-cage, Introducing, Norton's....756
Queen-cell Building, Pridgen....797
Queen-cells, Doolittle....498
Queen-cells, Natural....23
Queen-nurseries, Alley's....606
Queen-rearing, Alley's System....604-606
Queen-rearing Apiary in Australia....535
Rambler Baching in Mountain....16
Rambler Canning Comb Honey....52
Rambler Coasting Down the Mountain....136
Rambler in Oregon....180, '1
Rambler Surprised by Bill Green 225
Rambler Bicycling in the Rain....226
Rambler in Cold Water....337
Rambler Fishing....358
Rambler in the Rain....359
Rambler at Fountain....168
Rambler at the Wrong Berth....565
Rambler and Rotten Eggs....647
Rambler under Orange tree....740
Rambler's Solar Wax-extractor....53
Rambler's Mishap with Bicycle....139
Rambler's Automatic Feeder....648
Rambler's Honey-house....681
Rambler's Side-delivery Extractor....682
Rambler's Honey-strainer....683
Rambler's Improved Honey-scale....716
Rambler's Veil....717
Rambler's Hold-up....793
Rambler's Tent, Donkey in....833
Raspberry Honey, Transparency of....428
Scherff's Living Hive....765
Secor's Box-hive Man....167
Sections from Crosswise Super..942
Sections, Crate of 500....850
Sections, 3 Styles Compared....570
Sections, Weights of, Discussed..570
Sections, Tall, Styles for New York....263
Sections, Tall, v. Square....796
Slatted Separator for Beeway Sections....139
Solar Extractor, Rambler's....682
Solar Extractor, Rauchfuss....769
Solar Wax-extractor, Rambler's..53
Springs for Supers....141
Stinging Revenge....767
Super, Eight-frame....942
Super Springs for 1899....141
Supers for 1899....141
Super, Danzenbaker....100
Swarming-apparatus, Morton's....172, '3
Swarms, Hiving, in Australia....718
Tall Sections, Different Styles of..263
Tall v. Square Sections....136
Texas Catclaw....643
Tin-bound Slat Fence for Beeway Sections....139
Tool, Handy, for Apiary....184
Travel-stain on Section Boxes....41
Travel-stain in Comb....45
Union, National Bee-keepers'....507
Vernon Burt's Apiary....798
War-extractor, Rauchfuss....769
Weber's Apiary on Roof....[illegible]
Weed Foundation....217-219
Weed v. Ordinary Foundation....712-715
Weed's New Process Superior, Why....712-715
Wheel-path under Firs....46
Wire-cloth Introducing-cage, Norton's....[illegible]
York, G. W....[illegible]

Digitized by Google

Index to Editorial Items.

A B C Book and its Revision.....509
A B C Book, Old Edition Gone.....231
Abbott's Paper at Philadelphia...726
Adulterated Honey at Medina.....768
Adulterated-food Investigation...438
Adulteration and Pure-food Law 726
Adulteration, Doolittle on..... 23
Adulteration, State Laws for..... 23
Adulterators in Chicago, Pros'g...652
Advance, Australia 725
Advertisers Blowing own Horn...232
After-thought in the A. B. J.....187
Amalgamation in Prospect.....232
Amalgamation to be Consum'ted689
Apiaries in Cuba.....362
Apiary of Vernon Burt.....805
Apiary, Model Queen rearing.....546
Apis Dorsata..... 142
Apis Dorsata from Philippines57, 189
Apis Dorsata Hived by Rambo....438
Apis Dorsata at Medina.....509
Apis Dorsata, Government on.....101
Apple v. Shade Trees.....474
Arrival at Mr. Boyden's.....890, 902
Aspinwall Section-cleaner..... 21
Association Brand of Purity.....891
Australia, Advance.....725
Baby, Mr. Boyden's.....890, 902
Bakers and Fermented Honey.....856
Barn, Draper.....401
Barns for Wintering.....856
Basswood, The Largest.....807
Basswood, Extermination of.....807
Bearing Up the Market.....616
Bee Disease, Peculiar Kind.....725
Bees and Fruit-growing 56
Bees with Drone Heads..... ...724
Bees between Walls of House.....509
Bees, Birds, and Grapes.....653
Bee-cellars, Temperature of..... 56
Bee escape, Miller.....545
Bee-journals, Correspondents for580
Bee-keeper, Soured.....618
Bee-keeper's Loss, No Insurance101
Bee-keeping a Specialty.....727
Bee-keeping Industry, Growth...187
Bee-paralysis.....401
Benton Mailing-cage, Introducing.....768
Bicyle for Out-apiary Work.....142
Bicycles for Out yard Work 22
Bicycle, Delivering Honey on the144
Bicycle, To Carry Swarms on.....581
Bingham on No-wall Foundation362
Bingham's Loss of 80 Colonies by Fire.....637
Birds, Not Bees, on Grapes.....653
Bleaching Travel-stained Comb Honey.....320
Boiling-point of Honey.....233
Branding Comb Honey.....891
British Bee-keepers' Association.891
Burr-comb, Doolittle on.....101
Burt, Vernon.....544
California, Season in.....276
California, Prospects Poor for.....144
California, Rains in.....320
Canadian Bee Journal, New Editor.....856
Candied Honey for Consumers...890
Candy, Bee, for Winter..... 56
Catch, A Good.....545
Catch, Another Good.....618
Catch, That Good.....652
Cells, Doolittle, between Frames of Brood.....857
Chicago Adulterators, Prosecuting.....652
Chromotype Engraving Co.....856
Cleats, No-drip, for Shipping-cases.....321
Clipping Queens' Wings.....320
Clover and Basswood, why they do not Yield.....580
Clover, Why did not Yield.....618
Comb Honey in Cold Weather.....890
Confectioner, Candied Honey..... 58
Congress, Pure-food.....143
Coggshall Non-reversible Extractors.....892
Coggshall and his Apiary Help... 22
Coggshall on Witness-stand at Philadelphia 727
Coggshall Shipping by Carload...892
Coggshall, D. H.....892, 898
Coggshall's Bees.....892
Coggshall's Bee-suit.....892
Coggshall's Bees.....727
Colonies at Home of the Honey-Bees 21
Colony in Walls of Dwelling-house.....509
Colony, Large or Small.....234
Comb Honey, Travel-stained, Bleaching 320
Comb Honey, Extra Fancy in No-beeway Sections 362
Comb-honey Supers for 1900.....894
Commission Man, Plea for.....617
Commission Men, Tricks of.....616
Commission, Selling on.....688
Convention, Philadelphia545, 580, 652
Convention, Photograph of Philadelphia.....727
Convictions, Standing by One's..234
Cuba Discussed at Philadelphia..689
Cuba, Bee-keeping in.....689
Cuba, Roofed Apiaries in.....362
Cuban Honey, Poppleton on.....689
Dadant-Langstroth Hive 401, 546
Danzenbaker Honey not Overdrawn 23
Dickel Theory v. Parthenogenesis 231
Disease, Peculiar Kind in Texas 725
Disease, New, in New York.....857, 8
Division-board Feeder, Doolittle's.....894
Doolittle on Adulteration..... 23
Doolittle on Plain Sections.....364
Doolittle Cells by the Dozen.....510
Doolittle v. Editor Gleanings.....363
Doolittle's Change of Front on Burr-comb 101
Doolittle's Division-board Feeder894
Dorsata, Apis.....57, 142
Dorsata, Apis, at Medina.....509
Dorsata, Apis, Government on...101
Draper Barn.....401, 546
Dysentery, Remedy for.....187
Editors, Rival.....688
Editors, Supply-dealing.....363
Entrances, Wide.....806
Error, Persisting in.....473
Escape, Bee, Miller.....545
Exchanges, Our, Improvements in.....101
Extracting-supers for Comb Honey 401
Extractor, Coggshall's Non-reversible.....892
Factory at Medina Enlarged.....276
Feeding in Open Air.....727
Fire at Root's Factory.....438
Food, Pure, Congress.....143
Foster's Feeder.....958
Foundation, No-wall.....362
Foul Brood Diagnosed by Picture438
Foul Brood Investigated by Government 768
Foul Brood in New York.....858
Foul Brood, Naphthol Beta for...474
Foul Brood, New York's Inspector.....805
Foul-brood Law, Michigan.....233
Foul-brood Law in New York.....365
Foul-broody Honey, How Long to Sterilize 189
Foul-broody Wax.....401
Fruit-trees, Spraying in Bloom...402
Gadding, Hutchinson.....890
Gasoline and Steam Engines.....275
General Manager Secor's Report689
Geneva Convention..... 56
Germs, Life of, Destroyed by Sunshine 101
Gleanings List Booming.....768
Government Aid to Bee-keepers.768
Grading by Patterns.....439
Grading by Pictures.....439
Grapes and Bees.....650
Hetherington, Capt. J. E.....768-773
Hetherington as Soldier.....770
Hetherington Introducer of No-drip Case.....770
Hetherington Introducer of Tall Section..... 770
Hetherington and Closed-end Frames.....770
Hetherington Introducer of Super Spring.....770
Hetherington Introducer of Wires in Foundation.....770
Hildreth & Segelken.....857
Hive for Comb and Extracted Honey.....727
Hive, Dadant-Langstroth.....401
Hives, Large or Small..... 234
Hives Large, Discussion.....473
Hives, Making, by Foot Power...275
Hives, Making Your Own.....275
Hives, Shade for.....474
Hoffman Frames, to Handle.....821
Home of the Honey-bees, Enlargements.....276
Home-made Shipping-cases.....617
Honey Advancing.....275, 616, 768
Honey Not Advancing, Why.....652
Honey a Luxury.....689
Honey for Breakfast.....726
Holtermann on Plain Sections....231
Holtermann as an Evangelist.....768
Holtermann, What is the Matter of?.....188
Holtermann's Extra Fancy Beeway Honey.....362
Holtermann's Loss.....544
Holtermann's Reply.....232
Honey Commission Men.....857
Honey on Commission.....616
Honey on Commission or for Cash.....688
Honey Markets, Bare.....688
Honey Popcorn-crisp.....101
Honey Season for 1899.509, 544, 581, 616
Honey of Apis Dorsata.....437
Honey in a Sponge.....580
Honey Season of 1899 a Failure...580
Honey for Cakes, etc.....439
Honey, Boiling-point of.....233
Honey, Candied, Plea for..... 58
Honey, Fermented, Outlet for....856
Honey, Inky-black..... 618
Honey, Fancy, at Philadelphia...618
Honey, Foul-broody, to be Sterilized 189
Honey, Selling for Cash.....616
Honey, Extracted, High Prices on ... .617
Honey, To Sell on Commission for Cash.....616
Honey-comb, Petrified.....724
Honey-combs Without Separators.....474
Honey-flow, Reports Favorable...473
Honey-leaflet in the Form of a Label..... ... .187
Honey-leaflets in Other Forms...231
Honey-leaflet Not a Success.....102
Honey-sharks.....616
Howe, Harry, on Bicycle.....142
Hutchinson Gadding About.....890
Ideal Super, Why so Constructed894
Improvements for 1900..... 806
Index, Our.....935
Introducing, New Kink.....768
Introducing, Wire-cage Plan for.857
Israel, Death of..... 56
Journalistic Courtesy..... 21
Kellogg's White-clover Honey768, 9
Labeling Honey, Expert at.....856
Langstroth Monument Fund..... 58
Large Hives, Discussion of.....473
Law, Foul-brood, New York.....365
Law, Michigan Foul-brood.....233
Lawn-mowers, To Make Cut.....401
Leaflet, Honey.....187
Linden, Largest in the World....807
Linwood Park.....807
Luptom, F. T.....654, 935
Locality 937
Malady, New, in New York.....858

Digitized by Google

Markets Bare of Honey.....688
Monument Fund, Langstroth..... 58
Pictures, Prize.....937
Naphthol Beta as Germicide.....474
New Hives, Inventing..... 21
Niver at Medina.....473
Out-apiaries, Bicycle for.....142
Paralysis, Bee.....401
Pasteboard over Benton Cage.....768
Pender, W. S.....275
Persisting in Error.....473
Philadelphia Convention..545, 580, 650, 688
Philadelphia Convention Notes 688, 726
Photos for Bee-hive Cuts.....856
Pickings from Our Neighbors.....102
Plain Sections as Seen by A. I. Root.....544
Plain Sections at Vernon Burt's..544
Plain Sections Not as Well Filled.724
Plain Sections Condemned by Holtermann.....188
Plain Sections Defended.....294
Plain Sections, More Honey in....284
Plain Sections, Pushing, Condemned.....863
Plain-section Honey, Danzenbaker..... 28
Popcorn Crisps, Honey.....101
Poppleton on Cuban Honey.....689
Power, Foot, Gasoline.....275
Prospects for California.....144
Pure-food Congress.....143
Purity, Association Brand of.....891
Queens by Mail from Italy.....862
Queens Raised in Brood-nest.....437
Queens, Cheap, v. High-price.....231
Queen, $100, Wanted.....582
Queens, Higher Grade of.....582
Queens, $100.....725
Queen-breeders of South not Ahead.....437
Queen-cells by the Dozen, Doolittle.....510
Queen-cells, Coaxing.....857
Queen-rearing Apiary, Australia.546
Raines, Senator, on Spraying Law.....492
Rambler on Light-weight Sections.....582
Rauchfuss Solar Wax-extractor...769
Reformed Spelling, Mason on.....890
Review Prospectus.....231
Revision of A B C Book.....509
Reward, a Good Catch.....545
Robbing Bee-keepers.....618, 654
Root Co.'s Factory Enlarged.....276
Section Lumber.....807
Sections, Light-weight.....582
Sections, Plain, at Burt's.....544
Sections, Plain, More Honey in...234
Sections, Plain, at Toronto.....232
Secor's Report.....689
Sections, Tall, v. Square.....806
Section-cleaner, Aspinwall..... 21
Section-cleaning Machines.....437
Segelken, Mr.....857
Selser, Mrs., Labeling Honey.....856
Separator or Non-separator Honey.....474
Shade for Hives.....805
Shade-boards v. Apple-trees.....474
Shed Apiaries in Cuba.....862
Shipping-cases Improperly Constructed.....187
Shipping-cases, Home made.....617
Shipping-cases, No-drip, Cleats for.....321
Solar Wax-extractor, Rauchfuss..769
Spelling, Reformed.....805
Sponge, Storing Honey in.....560
Spraying Law, its Repeal Frustrated.....402
Spring, a Peculiar.....320
Square Cans, 5-gallon..... 22
Statistical Report of Honey Season.....581
Sterilizing Foul-broody Honey...189
Strength, A Little.....727
Subscription list of "Gleanings" growing.....856
Successes and Failures..... 57
Supply-dealers, Light Year for...857
Swarms, Serenading.....560
Swarms, To Carry on Bicycle.....561
Tables Turned.....616
Tall Sections Discussed.....806
Thorington, Fred S.....142
Travel-stained Comb Honey, Bleaching.....320
Uncle Sam after Luptom 654
Union, National Bee-keepers'..... 57
Union, N.A.B.K.....188
Victory Through Defeat.....652
Walker, Byron, on Bleaching Comb Honey.....320
Watermelon, Disease from.....725
Wax from Foul-broody Combs....401
Wing clipping.....320
Winter Losses Again.....320
Winter Losses, Severe.....362
Winter Losses to Date.....275
Wintering Losses.....231
Wintering Outdoors at Home of Honey-bees..... 21
Wintering, Outdoor Packing for.857
Wintering, Reports Favorable on.....189
West, The.....937

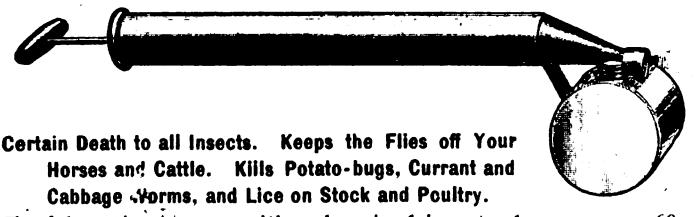
Index to Contributors.

Abbott E T, 214
Abby-Hardy Co., 141
Addison John B, 97
Aikin R C, 127
Allen J H, 548
Alley H, 307, 443, 604
Allison Mrs J H, 241
Atherton A, 96
Atwater E F, 888
Austin, W J, 399
Averill B F, 751
Axtell Mrs L C, 241
Ayers G F, 272
Baker F, 152, 587
Baldwell H, 687
Baldwin J, 230
Barber Mrs A J, 309, 463
Barford J, 17
Bates F A, 140, 409
Beach A L, 318
Beauchamp J W, 318, 725
Benton F, 47
Bixby J D, 271
Billings L P, 274
Blackburn C, 579
Blanton O M, 19
Boardman H R, 326, 766
Bonney C T, 14
Bowers Dr H, 553
Braham J R V, 317
Brodbeck G W, 271
Bromwich H J, 246.
Brown A A, 140
Brown H H, 151
Brown F E, 173, 185, 651
Brown E W, 409, 504, 533, 553, 575, 579
Brown A I, 472.
Briggs George, 24.
Buck D C, 723.
Buchanan E Z, 270.
Buchanan J A, 48.
Burnet H G, 86.
Burrell, H D, 152.
Burns Jas I, 516.
Burrow J A, 781.
Butterbaugh, A L, 578.
Carson A W, 94.
Canuck J, 538.
Calvert J T, 470.
Callbreath John S, 754.
Chapin R S, 687.
Chapin O P. 194.
Chinn R, 20.
Clark E D, 196.
Clark G A C, 767.
Cleveland J S, 516.
Coggshall D H, 107.
Cook T H, 697.
Cook J B, 20
Cook A J, 391, 723.
Cormac James, 179.
Cox A, 196.
Comeau James, 316.
Cowan Thos Wm, 107, 348, 356, 388.
Coffin E S, 697.
Carmichael J C, 508.
Crane J E, 42, 124, 169, 214, 271, 349.
Craycraft Jno, 241.
Craycraft Fred L, 261.
Cressy S W, 472.
Crosby J J, 303.
Culley S P, 353.
Cutts J M, 409.
Cyrenius F H, 25.
Dadant C P, 8, 25, 90, 257, 460.
Dancer W H, 20.
Danzenbaker F, 55, 100, 221, 618, 650, 838.
Davis M E, 766.
Davidson G F, 651.
Davenport C, 49, 133, 351, 536, 650.
Detwiler John Y, 151.
Dickson H A, 838.
Dickinson W, 30
Dines J B, 24
Dibbern C H, 502.
Dean G W, 196.
Deadman G A, 319.
Doolittle G M, 11, 45, 98, 138, 182, 223, 226, 268, 312, 359, 397, 434, 507, 541, 576, 614, 648, 684, 720, 763, 800, 836, 886.
Draper A N, 344, 461, 610.
Drake C M, 757.
Du Bois Marcus D, 24.
Eagerty W H, 98, 184.
Eaglefield E C, 901.
Eggers J F, 184.
Emmons E A, 19.
Etheredge J T, 516.
Evans Arthur A, 697.
Farrar C M, 108.
Fitzhart H, 622
Fooshe J D, 317
Forney P P, 107
Fox Elias, 305
Fox G S, 327
Fletcher J M, 246
Flanagan E T, 327, 361
Frizzell J, 780
Frohliger J C, 780
Gardner O A A, 697.
Garabrant Walter, 314.
Gates G W, 151.
Gathright W C, 516, 571, 804
Getaz Adrian, 89, 304, 398.
Gillmore C H, 553.
Gifford H T, 229.
Gill M A, 129
Gillette C P, 83.
Gilson H C, 107.
Gilstrap W A, 185, 223, 301, 390, 543, 573, 609, 766, 927, 934.
Gleason O, 623.
Goodenough B E, 542.
Goodrich J K, 19.
Good I R, 152.
Gould L H, 317
Goldsborough A T, 478.
Grainger Edwin, 329.
Greiner F, 9, 87, 213, 611, 753, 880, 924.
Green J A, 302.
Greer W H, 326.
Green W J, 371, 407.
Green E C, 623.
Gumbert M, 20.
Hains J B, 241
Hall W H, 240
Hamlin P M, 889
Hambaugh J M, 56, 174, 496, 830
Hammond Mrs R E, 240
Hammond D D, 687
Hansen A, 131
Hartwell Mrs A C, 195
Harrison Mrs L, 229, 361, 650
Harrison A A, 328
Hartman S, 30
Harmeling S J, 54, 241, 697
Hatch C A, 497
Hasty E E, 81, 676
Hess E F, 624
Heivly W O, 274
Henderson C, 246, 327, 517
Herbert W I, 408
Hetherington J E, 748
Hill J K, 315, 804
Hilton G E, 233, 436
Hilton J, 152
Hochstein C F, 230
Hoffman J, 107
Holtermann R F, 332, 798, 923.
Holtke F, 697
Hodge C F, 223, 882
Hoover A J, 24
Hooper Bros, 273
Howe H S, 306, 758, 885
Howe G B, [illegible]
Hostetler I, 623
Howard J O, 101
Huffman P I, 130
Hubbard J L, 25
Hubbard G K, 139
Hyde J L, 87
Hyde H H, 95, 651
Hyde & Son, 182
Ingals C S, 553
Isbell M, 107
James H L, 55, 572, 640
Jameson H M, 697
Jones G S, 803
Jones B F, 139, 900
Johnson E, 194
Johannsen J, 316
Kennedy F H, 329
Keeler T H, 184
Kibbe E B, 516
Kildow A L, 55
King A, 813
Klinger H O, 246

Digitized by Google

Klock W A, 697
Kreutzinger L, 273
Lathrop H, 465, 718
Lacy F D, 408
Lane A G, 322
Lashier D F, 151
Lassiter J M, 685
Lapsley R A, 762
Leatham W, 542
Leister A, 794, 928.
Lewis A A, 25
Lee J T 220
Lehman T, 791
Leyvraz A, 151
Lighty L W, 326
Littlejohn W H, 148
Lincoln C M, 246
Lockhart F A, 578
Ludden J S, 399
Lusby M S, 696
Lynch D B, 888
Mason A B, 545
Massie T K, 679, 931
March H A, 697, 774, 813, 947
Marks W F, 365, 402
Martin J H, 19, 130, 175, 222, 256, 271, 276, 307, 320, 345, 469, 567, 721, 800
Matthews Mrs S D, 149
Manum A E, 176, 195, 328, 371
McGee W L, 229
McGowan J J, 152
McNay F, 273
McGregor H E, 327
McIntyre J F, 542
McEvoy W, 176
McCoy E E, 315
McLallen H L, 317
McMurry F D, 485
McCurdy J M, 651
McLean Mrs J M, 705
McCoy C W, 766
McKenzie J L, 697
Mendleson M H, 543
Michener I, 107
Miller C C, 80, 88, 134, 259, 273, 305, 314, 316, 319, 327, 329, 427, 436, 579, 834
Miller W M, 241
Miller S F, 308
Mitchell J M, 317
Moore W L, 408, 658
Moore W P, 517
More E L, 650
Morse H J, 687
Morts C R, 269, 409
Morrell, F L, 480
Moll L, 766
Morris C E, 767
Murray J W, 25
Muth F W, 677
Myers J M, 220
Myers W C, 314
Nall E F, 888
Nash F P, 196
Newman T G, 365
Nichols O E, 140
Nicodemus J W, 152
Niver S A, 270, 315, 393, 473
Norton A, 19, 719, 756, 888
Northrup H J, 55
Northrup G G, 103
Ochsner E D, 752
Onderdonk B F, 464
Osburn's Son A W, 216
Orton P, 679
Offut M D, 765
Parent J I, 107
Parker R B, 196
Palmer C E, 402
Peabody J L, 195
Peavey T H, 152
Pettit M, 922
Pettit S T, 95, 184, 352
Peebles W G, 697
Pierson J. W, 948
Potter F, 778
Pond G H, 152
Poppleton O O, 463, 537, 922
Pratt Jas, 98
Pridgen W H, 797, 962
Quinn R, 107
Rambo W E, 424, 466
Rambler, 16, 51, 91, 135, 180, 224, 265, 310, 357, 395, 432, 467, 505, 539, 612, 646, 681, 716, 759, 792, 831
Ranson W B, 260
Rasmussen Wm Muth, 107, 644, 802, 884
Ratcliffe J D, 323
Ritchey D N, 462, 756
Reynolds R M, 24, 408
Robb W J, 144
Robinson J S, 148
Rouse J W, 222
Rood E B, 308
Root Carrie Bell, 433
Russell E R, 399
Rutherford S D, 780
Sage Burton L, 195
Safford Earl Y, 819
Scott James, 25, 167
Schatzle J, 813
Scherff Louis, 764
Schuyler Mrs F I, 813
Schaeffle E A, 686
Scholl Louis, 431
Seely W H, 436
Selby A D, 723
Secor Eugene, 58, 212, 826
Segelken H, 263
Senior Walter, 241
Shimp S B, 517
Sherman W T, 234
Sherwood E H, 107
Shepherd M W, 508
Simon M N, 270
Slingerland M V, 372
Sladon F W L, 500
Smith J P F, 408
Smith Edw, 98
Smith Thad, 152, 177, 273
Smith W R, 152
Smith Herbert, 246
Smith O L, 624
Snell F A, 13, 151, 503, 578, 930
Snearly John S, 329
Snyder F L, 25
Somerford W W, 6, 82, 215, 260, 429, 464
Soper W D, 144
Sproule T S, 352
Spencer M E, 398
Stancliff G F, 196
Stachelhausen L, 84, 316, 925
Stanton R M, 62
Stiles Wm, 18
Stebbins John W, 480
Swinson Abbott L, 240
Swoap W H, 541
Swynburn E N, 408
Tatmun M F, 61, 723
Taylor C E, 188
Teel J F, 315
Thompson F L, 14
Thornton E B, 761, 889
Thornton J W, 152, 196
Tilt I S, 274
Toepperwein Udo, 803
Tramp American, 300, 503, 642, 802
Travis L L, 723
Trego S F, 12
Tweedy D H, 24
Tyler D, 551
Uglow John C, 228
Vassmer H O, 96, 579
Vanhouten C W, 196
Vankirk J W, 780
Vinal Geo. L, 15, 272, 318
Vollmer Carl, 140
Wagar D I, 322
Wagner D, 151
Wanser G N, 889
Watts R C, 57
Weber Bros, 653
Webley F, 276
Weed E B, 84, 85, 217
Weidner A I, 25
Welch D H, 697
West N D, 97, 828, 887
Wheeler J M, 781
Whitney W M, 184, 436, 929
White D, 270
Wilson W, 24
Wilkin R, 45, 96, 317, 623, 750
Willard J S, 195, 274
Wilson H, 315
Winter C, 265
Wilams J E, 399
Wood D, 399
Woolf I A, 128
Wolfe C F, 399
Wright A J, 354, 401, 531, 574, 829
Wright W S, 24
Wrigglesworth W, 196
Wyric Mont, 904
Yoder G J, 517
Young J M, 241
Young W W, 517

THE FAULTLESS SPRAYER.



Certain Death to all Insects. Keeps the Flies off Your Horses and Cattle. Kills Potato-bugs, Currant and Cabbage Worms, and Lice on Stock and Poultry.

Faultless tin sprayer with galvanized iron tank.....60c; by mail 25c extra.
Faultless brass sprayers.....85c; " " " "

The Faultless Sprayer and a small boy will kill all the "old shellbacks" on 1000 hills of potatoes for a cent, and the boy will haul the water himself. The Faultless Sprayer is a simple, light, and indispensable exterminator of insect pests, on the farm, and in the house, barn, garden, poultry-house, greenhouse, etc. The Faultless Sprayer is economical. It will not drip nor slobber. Its shape is such that it sprays up or down. All liquid is pumped out in the finest possible spray, leaving but a spoonful in the can.

Its uses are unlimited. It sprays any liquid or solution on potato-vines, young trees, house-plants, garden-truck, poultry, and live stock.

With every machine is a stout linen tag, with full directions how to use the sprayer for all kinds of insects. Yes, this machine will answer for fruit-trees all right, but you would have to get up on a high stool or climb a ladder, to get the spray all over a tree of any size. For spraying orchards a larger and more expensive machine is needed. For keeping flies off horses and cattle, use kerosene oil in the above sprayer.

THE A. I. ROOT COMPANY, Medina, Ohio.

Digitized by Google

The A B C of Bee Culture

1899 Edition.

The only Cyclopedia on Bees—475 Pages.

The demand for this work has become so great that the preceding edition, consisting of 10,000 copies, was exhausted some months before the new one could be gotten out; and in the six months intervening, something like 1000 copies of the new work have been sold, and that even before it was out of the press. This, the latest edition, reaches the 67,000 mark, and is in many respects very much superior to any previous edition, in typographical appearance and quantity of new subject-matter and general revision of old subjects, as we are now building upon the knowledge and experience of these latter days, when such wonderful strides are being made in the arts and sciences.

A large number of the old subjects have been rewritten; and among them may be named Artificial Honey-comb, Comb Foundation, Comb Honey, Contraction, Foul Brood, Queen-rearing, Reversing, Vinegar, and Wax. The new subjects incorporated in this particular edition, and which do not appear in the older books, are Apis Dorsata, Bees and Grapes, Hives, Honey, Honey on Commission, Honey as a Food, Honey-peddling, Willow-herb, Weight of Bees, entirely new Preface, and a new Introduction. Nearly all the other remaining subjects have been largely rewritten or revised in places, so that the whole book is practically an entirely new work.

The subjects of Comb Foundation, Comb Honey, Hives, and Honey have received special attention in the new work. Strange as it may seem, no previous edition of the book contained the subject of Hives or Honey. The former was discussed in a general way under the heed of Hive-making; but the new subject deals not with how to make hives, but with the principles of construction. Following a discussion of size and shape of frames, hives themselves and their various styles and makes are described. The question of large and small hives, and the relation that the locality has upon the matter, is very exhaustively treated. Last of all, double-walled (or wintering) hives are described in full. The whole subject is discussed impartially, as we believe, leaving the intelligent reader to select such hive as his locality and his particular notions may require. "Honey," another new subject, is considered, both as food and as medicince.

The new book, like the old, is arranged on the plan of a cyclopedia, for ready reference; and, in addition, bold head-lines indicating the sub-heads are found on nearly every page.

As the name indicates, the book is written principally for beginners, and covers exhaustively every subject necessary for the successful management of bees, so that even the advanced bee-keeper will find much that is new and useful.

After the twenty pages of introductory matter there are 340 pages devoted to a general treatment of the subject of apiculture. Following this, and continuing for eight pages, is a series of answers to as many knotty questions that are propounded by beginners. Next is a glossary of three pages, defining the terms peculiar to bee-keeping. Then for 11 pages more there are reviews and comments by two eminent bee-keepers—G. M. Doolittle and Dr. C. C. Miller, on the general subject-matter contained in the body of the book. This is indeed an interesting and valuable feature. The remaining portion of the book is taken up with biographical sketches occupying 32 pages, and a picture-gallery containing pictures, with a short description, of some of the most important apiaries of the world. Last of all is the index, comprising nine pages.

The entire work contains 475 pages and nearly as many engravings, a very large part of which belong to the modern half-tone class, showing nature and art as they really are. Something like 50 new full-page half-tone engravings have been put into the new book, most of which are printed on what is known as enamel book paper—the finest there is sold.

No pains have been spared to make this the fullest and most up-to date bee-book that we have ever gotten out; and the very fact that nearly a thousand copies were sold, even before the edition left the press, goes to show that the general bee-keeping public appreciates our efforts in giving something really exhaustive and up to date.

Price, in cloth, 475 pages, gotten up in cyclopedic form, postpaid, $1.20; by freight or express with other goods, $1.00; or clubbed with GLEANINGS IN BEE CULTURE for $1.75.

THE A. I. ROOT COMPANY, Medina, Ohio.

Digitized by Google

Do You Want a Good Market for Your Crop of Honey, both Comb and Extracted?

We are in position to handle any quantity, large or small, to better advantage than any other house for the following reasons:

We deal almost exclusively in honey, giving it our closest attention all the year round.

We keep ourselves thoroughly posted as to the result of the crops gathered in the honey-producing States.

We are acquainted with the most desirable trade throughout the country, and know exactly what their wants are.

We know, through our long experience, the different varieties and qualities of honey; therefore know what we are selling, and no fear of selling fancy stock at the price of a third grade.

We handle by far the bulk of all the honey sent to New York, and our volume of business enables us to make the charges very reasonable.

Why, then, should we not be able to handle your crop to advantage, and do you justice in every respect?

We handle not only on commission, but WE BUY OUTRIGHT as well, from small lots to carloads, for spot cash.

If you prefer to sell your product, write us, stating quantity you have, quality, and how put up, and we will make you our cash offer.

We shall be glad to correspond with you in regard to your crop, and hope to have the pleasure of hearing from you soon.

HILDRETH & SEGELKEN,

120-122 W. Broadway, - New York City.

Digitized by Google

Latest Improvements,
Perfect Goods,
Very Reasonable Prices.

Hives, Sections,
Shipping-cases,
Extractors, Etc.

Everything a Bee-keeper Needs.

Catalog and copy of the American Bee-keeper free. Address

The W. T. Falconer Man'f'g Co.,
Jamestown, N. Y.

THE AMERICAN BEE-KEEPER is a live monthly and has been published by us for the past 10 years. Fifty cents a year.

The Best Bargain
is the
Best Goods at
Fair Prices.

And that's the secret of our immense trade that has made us

Headquarters
in the West

for bee-keepers' supplies. WE are ready now for the season of 1899 with an immense stock of the latest and best in our line. Send for our 1899 catalog and discounts for early orders.

Address

Jos. Nysewander,
Des Moines, Ia.

22d Year. 22d Year.

Dadant's Foundation.

Why Does it Sell so Well?

Because it has always given better satisfaction than any other. Because in 22 years there have not been any complaints, but thousands of compliments.

We Guarantee Satisfaction.

What more can anybody do? Beauty, purity, firmness, no sagging, no loss. Patent Weed Process of Sheeting.

Send name for our Catalog, Samples of Foundation, and Veil Material. We sell the best veils, cotton or silk.

Bee-keepers' Supplies of all Kinds.

Langstroth on the Honey-bee, Revised.

The classic in bee-culture. Price $1.25 by mail.

Chas. Dadant & Son, Hamilton, Hancock Co., Ill.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

RETURN TO the circulation desk of any
University of California Library
or to the
NORTHERN REGIONAL LIBRARY FACILITY
Bldg. 400, Richmond Field Station
University of California
Richmond, CA 94804-4698

ALL BOOKS MAY BE RECALLED AFTER 7 DAYS
2-month loans may be renewed by calling
(510) 642-6753
1-year loans may be recharged by bringing books to NRLF
Renewals and recharges may be made 4 days prior to due date

DUE AS STAMPED BELOW

MAY 05 1995

RETURNED
JUL 21 1994
Santa Cruz Jitney

20,000 (4/94)

Digitized by Google

636895

SF521
94
v.27

UNIVERSITY OF CALIFORNIA LIBRARY

Digitized by Google

Digitized by Google